



HARTWELL LAKE PROJECT Savannah River, Georgia And South Carolina

REHABILITATION OF CLEMSON UPPER DIVERSION DAM

CONTRACT NO. DACW21-83-C-0066

CONSTRUCTION FOUNDATION REPORT

VOLUME 2 OF 2



Approves for public released

Distribution Unlimited

AUGUST 1989

U.S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

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HARTWELL LAKE PROJECT SAVANNAH RIVER, GEORGIA AND SOUTH CAROLINA REHABILITATION OF CLEMPON UPPER DIVERSION DAM CONTRACT NO. DACW21-83-C-0066 CONSTRUCTION FOUNDATION REPORT

In Two Volumes

VOLUME II - APPENDICES B THRU E

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SAVANNAH, GEORGIA

APPENDICES

(Volume II)

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REHABILITATION OF CLEMSON UPPER DIVERSION DAM CONSTRUCTION FOUNDATION REPORT

APPENDIN B

Boring Logs - "New Piezometers"

							Hole !	<u>lo.</u>	PC-201	A
DRILL	ING LO		H VISION South Atlantic	Har	ATION twell I	ake			SHEETI OF 3 SHEE	. T!
Clemson	n linne	r Div	ersion Dam				X5 1/2"dia		t 6"rock	
LOCATION	(Coordin	stee or S	(atlon)	-	MSL MSL	EVATION	2HOMM (15M C	MSL)		
11+04.		<u>יקני ' 5</u>	stream	12. MANU	Facture Failir	ER'S DESIG	NATION OF DRI	LL		
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DIRECTION				IS. DATE			TER N/A	:	MPLETED	
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LEVATION			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		1 CORE	BOX OR	RI	EMAR	nks	
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647.3'	30-	<u> </u>	Continued on sht 2		-			1 1	<u> </u>	_
	=		NOTE: Soils visuall							
	-=		in accordance with		ied So	11				
	\exists		Classification Syst	em						
	===		B-2							
			B-2							

RILLING	LOG (Cant Sh	eet) ELEVATION TOP OF HOLE	677.	3'		Hole No.		201A
NECT.			i i		11 Lake			SHEET	3 SHEETS
Clemson	l'pper	Divers	ion Dam			BOX OR	REA	AADKS	
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description	MATERIALS	RECOV-	SAMPLE NO.	(Orilling time, t weathering, et	water lus.	s, depth of ssfitan:)
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	LOG	(Cont Si	neet) ELEVATION TOP OF HOLE	677	.3'		Hole No.	PC-201A
າຍຕ lemson	Upner	Divers	sion Dam		well L	ake		SHEET 3
			CLASSIFICATION OF MATERI	AIS	% CORE	BOX OR	RE	MARKS
EVATION	DEPTH	LEGEND	(Description) d	1	RECOV- ERY	NO.	weathering, e	water loss, depth of tc., if significant)
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00.8'	75 -	I+I+					Backfill	76.0
00.8	=	41+1		76.5				
l			(GM) Tan silty sandy	CPAVEL:				78.0'
97.3'	-	1447					2.0'Well	
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Hole No. PE-201A SHEET 1 INSTALLATION DIVISION DRILLING LOG or 2 SHEETS Hartwell Lake South Atlantic 1. PROJECT 10. SIZE AND TYPE OF BIT 475 1/2" dia hit 6"rock b Clemson Upper Diversion Dam 2. LOCATION (Coordinates or Station) 11+09, 29' t 29' upstream 12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314 Savannah District

4. HOLE NO. (As shown on drawing title)
and tile number UNDISTURBED DISTURBED TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 0 0 PE-201A 14. TOTAL NUMBER CORE BOXES 0 S. NAME OF DRILLER 15. ELEVATION GROUND WATER H. Brown M/ACOMPLETED 6. DIRECTION OF HOLE 16. DATE HOLE 11 Jan 1984 12 Jan 1984 WYERTICAL MINCLINED DEG. FROM VERT. 17. ELEVATION TOP OF HOLE 677.3 7. THICKNESS OF OVERBURDEN 65.0' IS. TOTAL CORE RECOVERY FOR BORING S. DEPTH DRILLED INTO ROCK 0.0' 19. SIGNATURE OF INSPECTOR Thaddius Zielonka, Jr. 9. TOTAL DEPTH OF HOLE 65.0' % CORE BOX OR RECOVERY NO. CLASSIFICATION OF MATERIALS (Description) REMARKS LEGEND (Drilling time, water lose, depth of weathering, etc., if eignificant) ELEVATION DEPTH <u>677.3'</u> o' Riprap × Х × 10.5 666.81 A" Hole Dia. (SM) Brown & reddish brown × fine to med.grained micaceous silty SAND. X Cement Bentonite Crout RISE 5 5 χH 647.31 Continued on sht 2 MOTE: Soils visually field classified in accordance with the Unitied Soil Classification System.

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	100	(Cont :	ineet)				Hole No.	PE-20)1A
outo Clemson	Upper	Diver	sion Dam	INSTALLATION Hartwell	l Lake			SHEET 2	SHEETS
			CLASSIFICATION OF		% CORE	BOX OR	RE	MARKS	
LEVATION	DEPTH	LEGEND	(Description		RECOV. ERY	SAMPLE NO.	(Drilling time, weathering, et	water loss, a c., if signific	lepth of ant)
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Classification System.

B-7

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OJECT	::06	(Cont S	Sheet) ELEVATION TOP OF H	677.3' MSL			Hole N		F-201A
	Upper	Diver	sion Dam	Hartwell				SHE	ET 2 3 SHEETS
LEVATION	DEPTH	LEGEND	CLASSIFICATION C		RECOV.	BOX OR	(Drilling	REMARKS time, water l	oss, depth of
647.3	- P3c	· c	d		ERY	JAR	wediner	ing, esc. if si, B	BLOWS
,	~		(SM) Red-brown			7	×	+ +	2
	~	• [• [micaceous silt	y SAND.			+		=
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	40		Red-brown fine micaceous silt		e d	i	T +	h	3
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	50-		Light brown w/ gravel.	race fine			+	9 ×	+
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	111	1 1 1	Color change to	red-brown.	;			3	
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	rog	(Cont S	heet) ELEVATION TOP OF HOLE	677.3	3'	Hole No	PF-20	1 A
olect Clemson	Uppe	r Pive	rsion Pam Hartwe	ll Lake				3 SHEETS
			CLASSIFICATION OF MATERIALS	% CO			REMARKS	denih of
LEVATION	DEPTH	LEGEND	(Description)	ERY	NO.		ng, etc. if sixmifi	cant)
607.3'	70 6	c	d To Air		13	P - 1 - 1		BLOWS
	=		(SM) Continued. Tan, fine med.grained silty SAND.		13	Random Backfill	+ +	-
	=		some gravel.	10.,		j 1	+	3 <u>5</u>
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500.8'	=		(64) 7-2	1		- X X	17.0') 3
	; <u> </u>		(GM) Tan silty sandy gra-	ver				54
	=			- 1	14			75
597.8'	80		Top of Rock 79.]
	- 00		(CRANITE CNEISS)	į				
	į –		Intensely wea., soft, tan	to	-			1
			orange-brown, w/some white		Seal			Pull
	! =		light grey zones, fine to	0	•			#1
	_		coarse grained, micaceous		Bentonite		82.0//	NOTE:
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	-	1	Bottom of Boring 93.0'	1 ;	į	NOTE: S	cale chan	ge '
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PF-201A Hole No. SHEET 1 INSTALLATION DIVISION **DRILLING LOG** Hartwell Lake OF 3 SHEETS South Atlantic 1. PROJECT 10. SIZE AND TYPE OF BIT 4X5 1/2"dia.6"rock_bit, 11. DATUM FOR ELEVATION SHOWN (TER - MEL)

Splitspoon, 6"fish-Clemson Upper Diversion Dam 2. LOCATION (Coordinates or Station)
Sta.11+00, 29' Upstream 12. MANUFACTURER'S DESIGNATION OF DRILL 3. DRILLING AGENCY Failing 314 Savannah District UNDISTURSED DISTURBED 13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN HOLE NO. (As shown on drawing title and file number) 0 PF-201A 14. TOTAL NUMBER CORE BOXES S. HAME OF DRILLER 15. ELEVATION GROUND WATER N/A C.D. Justiss 17 Dec 1983 6. DIRECTION OF HOLE STARTED 16. DATE HOLE 4 Dec 1983 WYERTICAL | INCLINED DEG. FROM VERT 677.3' 17. ELEVATION TOP OF HOLE 7. THICKNESS OF OVERBURDEN 79.51 60.0' 18. TOTAL CORE RECOVERY FOR BORING S. DEPTH DRILLED INTO ROCK 13.5 19. SIGNATURE OF INSPECTOR Thaddius J. Zielonka. 93.0' Jr. 9. TOTAL DEPTH OF HOLE % CORE BOX OR SAMPLE NO. JAK REMARKS CLASSIFICATION OF MATERIALS (Description) (Drilling time, water lose, depth of weethering, etc., if significantly Discovery ELEVATION DEPTH LEGEND 677.3' M) ' Riprap NOTE: Piprap cored using 4X5 1/2" dia bit & starter barrel. 668.81 1 (SM) Light reddish-brown, fine-med.micaceous silty 2 SAND. With trace of fine gravel. Color change to light brown. 3 Light reddish-brown & fine grained w/no gravel below 20 Ī5.0'. Color change to red-brown. 4 Color change to tan-brown. 25.5' 651.8' No recovery. (Hit rock) 27.0' 650.3' 6 (SM) Reddish-brown fine grained micaceous silty 100/0.3 SAND. With trace of med. 647.3' Continued on sht 2 BLOWS PEP FOOT: Number required to drive NOTE: Soils visually field class fied in accordance with the Unified Soil l 3/8"ID splitspoon w/ 140 lb. hammer falling Classification System. 30".

B - 10

DJECT				677.3'		 _	Hole No.	PF-20	
	n Upper	Diver	rsion Dam	Hartwell	Lake			SHEET OF 3	2 Sheets
EVATION	DEPTH		CLASSIFICATION OF MA		% CORE	BOX OR		MARKS	
647.3'	30'	LEGEND	(Description)		RECOV- ERY	NO.	(Drilling time, weathering, e	water loss. ic., if signifi	depth of
14 /2	-8.		dd		e	7		g	BLOWS
	1		(SM) Continued. Re	d-brown fi	ne	,			26
		+1+1	grained micaceous	silty SAND	•				
		+1+1	Tan-brown below 33	0'		8			25
	35	+1+1	Tan blown below 33	.0.					26
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		1414							<u> </u>
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	! =	+ + +	Red-brown fine to micaceous silty sa			 !			29
	. =	+1+1	of white wea.felds			9 ,			
	7	†] †]	(kaolinite).						38
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1		 	Light brown w/trackgravel.	e of fine,	i !				. 1
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	7	• • •	Color change to re-	l-hrorm					<u>51</u>
	55	I • I •	color change to re-	i-brown.	;				28
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i	=	Ĭ †Ĭ†ŀ	_/With trace of white feldspar grains be:		+				54
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[60	†]†]			1				37
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}	7	†] †]		1		12			41
	7	† †	Tan fine to med.si	ty sand	-				<u>30</u>
;	=	IţĬţ	/w/some gravei.			$\lceil 13 \rceil$			21
77.3	70	IOTO				,			29
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	7	}	B-11						
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DRILLING	LOG	(Cont	Sheet)	ELEVATION TOP	OF HOLI	677.3'			Hole No.	PF-201A	
PROJECT		- 5:	·	D		INSTALLATION	1 7 '			SHEET3	
Clemson	Upper	Dive	rsion	Dam		Hartwel		Jaox Os		OF 3 SHEET	<u>s</u>
ELEVATION	DEPTH	LEGENO		CLASSIFICATIO	N OF		% CORE		(Drilling time	EMARKS . water loss, depth etc., if significant)	
607.3'	<u>70'</u>	c			d		e	f		g BLO	VS.
	_	╛┝┇┝╏				Tan, fine t		13			35
		1111		i. grained ne gravel.		lty SAND. W	lun		4		
	-			-							28
	75 -	[NOTE: Scale	e change 👨	21
600.8'	=	111	-			76.	5'		80.0'		<u>59</u> E
			(GN	() Tan sil	ty s	sandy GRAVE	L	14			54
597.8'	=		,			79.	5 1				75 F
	80 —		(()	ANTTE CNE	156)	Intensely			Pull #1		
	_					orange-br		Í	From 79.5'	To 85.1	-
) 1			/ w/s	some white	to	light grey	•	j	Run 5.6' C.L. 5.2'	Rec 0.4'	E
	-	17.		nes,fine t			71.1	.73	0.6. 5.2		E
	82 —		gra	ined, mica	iceoi	us,foliated	RQD	}			E
í	02 _		Á				0.0%	. i			E
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	84 —	1/65	r.						1 4		
:	54 _		• 1				i	j	1 1		j-
	-		②(GI	RANITE GNE	EISS))			•	,	35 : 1 '-
592.2'		1/20	<u> </u>					: :=	Pull #2		<u> </u>
1	_	1- \ - \	(CT	RANITE GNE	TCC'	`	92.3	73	From 85.1'	To 86.4'	
	86	يتــــــــــــــــــــــــــــــــــــ	." (G:	KANTIE GNE	122	,	RQD 65.0)% (**)	Run 1.3'	Rec 1.2'	E
590.9'	00 _		·					_	C.L. 0.1'		
j,,,,,	-		'-					1	Pull #3		
		1-17	1					!	From 86.4	To 89.11	E
1		\					96.3	74	Run 2.7		E
	88-	1/5.	!				RQD		C.L. 0.1'		E
	-	1: :=	:				48.0)\$			Ŀ
,	_		4						1	:	39.1 E
588.2'		1//::	(0)	RANITE GNI	7227	·	-+	4	D-11 #/		
	_		•	MANIE ON	.133	,		1	Pull #4 From 89.1'	To 93 O'	-
	90-		d d						Run 3.9'		
	-						100%		C.L. 0.0'		-
Í	-	1/2/2.1	•				RQD	•	1		1
]: -:;					82.0%	.			-
]	-	1									- -
584.3'	93-	<u> </u>	-	rtom of n		~ 02 01	/		NOTE: Scal	e chance	
304.3	-	7	Po	ttom of Bo	ינינון	g 93.0			90.0'	e change 4	L
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lele Ne. PC-205A

DRILL	ING LOG	DIVISION	ith Atlantic	INSTALL	ATION rtwell	Lake			SHEE"	SHEE	
1. PROJECT		ــــــــــــــــــــــــــــــــــــــ		10. SIZE	AND TYPE	OF BIT	6X7 3/4"dia	1, 6	"fisl		끡
Clemson 2 LOCATION	Upper D		n Dam	11. DAT	MSL	EVATION	SHOWN (TBM or	MSL)			
$\frac{1}{6}+05, 3$	O' Upstr					ER'S DESIG	GNATION OF DR	ILL			\dashv
Savanna	AGENCY h Distri	ct		<u> </u>	ling 3					TURBE	_
	(As shown on		PC-205A	13. TOT	al no. of Den Samp	OVER- LES TAKE	N OSTURBED		UNDIS	0	
S. NAME OF	DRILLER		<u>i </u>		AL HUMBE						\square
H. Brow				IS ELE	VATION GI		TER N/A	1.55	MPLET		_
1	CAL MOLE	INED	DEG. FROM VER	T. 16. DAT	E HOLE		Feb 1984		Feb .		
7. THICKNES	S OF OVERBL	JROEN 79	9,5') -	VATION TO			- 			_
O. DEPTH OR	ILLED INTO		1.5		AL CORE !		Y FOR BORING	N/	Α		4
9. TOTAL DE	PTH OF HOL	. 81	1.0'		ius J.	Zielor	nka, Jr.				
ELEVATION	-	GEND	CLASSIFICATION OF MATEI	RIALS	1 CORE	BOX OR SAMPLE NO.	(Drilling time	EMAR	e loss,	depth of	
677.0'	0,'	٠ .	4		ERY	NO.	weathering,	etc.,	if eigni	(icens)	
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	=			10.0'			6" Hole	whole □ Di	/ a —		↓ +
667.0'	10						, ,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	. 01	.		-
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647.0'	30					}	1		}	,	*
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		G	rassification syst	em.	Ì	1					F
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	LOG	Cont	Sheet)	ELEVATION TOP OF HOLI				Hole	e No.		PC-2	05A_
PROJECT					INSTALLATION						неет2	
Clemson	Upper	Dive	rsiou	Dam	Hartwell	Lake					x+3 s	HEETS
				CLASSIFICATION OF	MATERIALS	% CORE	BOX OR			REMARI		
ELEVATION	DEPTH	LEGEND		(Description)	ERY	SAMPLE NO.		ling time			
64%.C'	<u> 30'</u>	c		d		e	f			g		
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635.0'	_) Red-brown		<u> </u>		. +	¥		+	
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629.0'			7				1	Grout		ISE		
947.0	_	7171		 Brown fine 			,	×	<u>.</u>	8		
		1711		micaceous si	lty SAND. Wi	t h		1			+	
	50	1111	mir	or clay.			İ	! 		PVC		
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607.0'	_	1111	T		_	1	-	+				
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PROJECT		heet) ELEVATION TOP OF MOLF			Hole No.	SHEET 3
Clemson	Upper Diver	sion Dam Hartw	ell Lake	1	, 	OF SHEETS
ELEVATION	DEPTH LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO.	(Drilling time.	EMARKS - water luss, depth (etc., if significant)
607.0'	20' c	d	e	f	Cement	g
	= 	(ML) Continued Brown mic	aceous		Bentonite	RISER.
605.0'			.0%		Grout	
	 		 /_j			3
	=	(SM) Dark grey fine grat micaceous silty SAND.	ned		Bentonite Seal	3
	75	micaceous sirty office.			3ea1 ///	\$ //
] 				Sand	3/4"
					Backfill	78.
597.5'	=		9.5	1		
397.3	80	(GRANITE GNEISS)	7		2.0' Well	80
596.0'		Bottom of Boring 81.0	\neg		well	screen
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PE-205A Hole No. SHEET INSTALLATION Hartwell Lake South Atlantic OF 2 SHEETS 10. SIZE AND TYPE OF BIT 67 3/4"Dia & 6" Fishtail 12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314 UNDISTURBED TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED PE-205A 14. TOTAL NUMBER CORE BOXES 18. ELEVATION GROUND WATER STARTED COMPLETED 16. DATE HOLE Feb 1984 8 Feb 1984 _ DEG. FROM VERT. 17. ELEVATION TOP OF HOLE 677.0 N/A18. TOTAL CORE RECOVERY FOR BORING 19. SIGNATURE OF INSPECTOR Thaddius J. Zielonka, T CORE BOX OR RECOV-SAMPLE NO. REMARKS CLASSIFICATION OF MATERIALS (Description) (Drilling time, water lose, depth of weathering, etc., if significant) • Cement Bentonite Grout 10.0' Hole Dia .-+ メ RISER Embankment Pvc 5 4 SCH +

25 647.01 30 Continued on sht 2 NOTE: Soils visually field dlassified in accordance with the Unified Soil Classification System. B-16

DIVISION

50.0'

0.0

50.01

Riprap

DRILLING LOG

3. DRILLING AGENCY Savannah District

& NAME OF DRILLER

H. Brown

2. LOCATION (Coordinates or Station) 6+10,30' upstream

4. HOLE NO. (As shown on drawing title

WERTICAL DINCLINED

7. THICKNESS OF OVERBURDEN

a. DEPTH DRILLED INTO ROCK

DEPTH

ſ**Ъ**'

LEGEND

9. TOTAL DEPTH OF HOLE

ELEVATION

577a.0'

667.0°

Clemson Upper Diversion Dam

1. PROJECT

	LOG	Cont S	heet) ELEVATION TOP OF HOLE		7.0'		Hole No.	PE-205A
OJECT			sion Dam		well :	Lake		SHEET 2 OF 2 SHEETS
			CLASSIFICATION OF MATERIAL		% CORE	BOX OR	R	EMARKS
LEVATION	DEPTH	LEGEND	(Description)		RECOV- ERY	SAMPLE NO.	(Drilling time weathering.	, water loss, depth of etc., if significant)
647.0'	<u>30'</u>	c	d		e	<u>f</u>		<u> </u>
	_		Embankment				× ×	
	=		Embatikmetic		}		Cement	\ \ \ \ \ \ \
							Bentonite	
}	=						Grout X	1 . 1
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	40-				[177	₹ 40.0
	_			42.0'	}		Bentonite	11///
35.0'		70 7			1		Seal /	SCH.
			(SC)Red-brown, fine to				Y / / /	45.0°
	_		grained micaceous cla	yey				m / +3.0
	45	229	SAND.		ļ			
					}		Sand	47.0
					Ì		Backfill r	
29.0'	_		☐ (SM) Brown, fine to me			Ì		2.0′ well . 49.∪
1		• [• [ed micaceous silty SA minor clay.	ND. WI	In			screen
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Hole No. PF-205A

		101	VISION		INSTALL	ATION			SHEET
	ING LO	6	Sou	th Atlantic		twell			OF3 SHEETS
1. PROJECT		.		7	10. SIZE	AND TYPE	OF BIT	4X5 1/2"dia6	"rock bit&
Clemson L LOCATION	Upper	Diver	sion	Dam	J	um for el MSL	EVATION.	SHOWN (TEM or MSL)	6"fishtail
6+00, 3	0' Ups	stream	- rore		L		R'S DESI	GNATION OF DRILL	
1 DRILLING	AGENCY				1	ilinz	_	.	j
Savanna	h Dist	rict	-444		13. TOT	AL NO. OF DEN SAMPI	OVER-	DISTURBED	UNDISTURBED
A. HOLE NO.	up es		ng (1610	PF-205A				_ `	0
S. NAME OF	DRILLER					AL NUMBE			
H. Brow		_			18. ELEY	VATION GF		11/ A	{
4. DIRECTION					16. DATI	E HOLE			MPLETED Feb 1984
XX VERTIC	- L	NCLINED		DEG. FROM VERT.	17 51 51	VATION TO			100 130
7. THICKNES	S OF OVE	RBURDE		.5'				Y FOR BORING	
B. DEPTH DR	ILLED IN	ITO ROCK	11	.3'		ATURE OF			-
. TOTAL DE	PTH OF	HOLE	90	.8'				onka, Jr.	ł
ELEVATION	OFRTH	LEGENO	,	LASSIFICATION OF MATERIA	\LS	% CORE	BOX OR SAMPLE	REMAR	iks .
677.0'	MO'			(Description)		ERY	NO.	(Drilling time, water weathering, etc.,	r iose, depth of if significant
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667.C'	10				-			6" Hole T	ia. —
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647.0'	30 _		Co	ntinued on sht 2					
		1	NC	TE: Soils visually				1	
				accordance with t		ied So	il	1	
<u> </u>			C1	assification System	m.	1			
		}	}			{		i	
		}	ł	B-18		}	}	}	
	=]	!				J	}	

			ineet) ELEVATION TOP OF HOLE		7.0'		Hole No.	_	-205A
PROJECT Clemson	Unner	Divers	ion Dam	Installation Hartwell Ea	ake			S	HEET 2
			CLASSIFICATION OF		% CORE	BOX OR		REMARK	(S
ELEVATION	DEPTH	LEGEND	(Description		RECOV. ERY	SAMPLE NO.	(Drilling time weathering,	elc., if	r loss, depth of (significant)
647 20'	3√	с	d	· · · · · · · · · · · · · · · · · · ·	e	f		g	
			Embankment Conti	inued4			××	[XX
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635.0'	_			42.0'			· × ×		
		///	(SC) Red-brown,f	ine to med.			†		×
ļ	=		grained micaceou			1	X X		×
	45		SAND.		1		××		
	, <u> </u>	779			(:		УХ	1	<i>></i>
	_			48.0*	:		1	SE	<i>\</i>
629.0'		797	√(SM) Brown, fine			j	×××	12	
	_	† [†]	ed micaceous sil	Lty SAND. Wi	th		X		×
ļ	50	• • • •	minor clay.		i :	ļ t	XXX	> 2	
;	=	1+1+	C-11		1		Comont X	1	×
!	_		Color change to brown.	reddisn-	:		Cement Bentonite	0	X
	_	[+[+	DEOWII.		<u>.</u>		Crout	V	X
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!	55	IţŢ	Color change to	light brown	į		× ×	SC	X
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100 m					 		X	W,	X
ļ	_				1		<i>></i>	1	×
İ	60-				1	į	×		X
ļ		 	Color change to	dark grey.		}	X		×
	_	† [† [x × x		×
ļ			Dark grey & find	e grained.	! !		X		×
			Color change to	brown.			X		×
	65—	7 1	Ú		j	!	^ x x		x ^
	=]]			}				X
		1 1		69.0'	į		XX		X
608.01	_	 	/(ML) Brown mica	ceous lean		}	X X		X
ļ	_	777	SILT.	_	Ť	}	XXX	↓	1
607.n'	70-		Continued on sh	+ 3	_	-			
			Continued on su	. J	<u> </u>				
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		(2011 3	neet) ELEVATION TOP OF HO			67	7.0Hole No.	PF-205A
PROJECT	II n	D4	iam Dam	INSTALLATION	7 -1			SHEET 3
Clemson	upper	Divers		Hartwell	% COPE	BOX OR	DE	MARKS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description)		RECOV- ERY	SAMPLE NO.	Drilling time.	water loss, depth of tc., if significant)
607.40'	70'	c	d		c	f	 γ	<u>g</u>
	_	14111	(2-2)			1	* *	1 + +
605.0'	_		(ML) Continued.		<u> </u>)	Cement 1	×
		•I•I	Ceous lean SILT	72.0			Bentonite	
	_	4747	(SM) Dark area	fine emained			Grout	+
			(SM) Dark grey micaceous silty					× 4
	75 —		wicaccods sircy	OMID.]		+ +	
	_				1		+	
	_	[] • [•]			<u> </u>		×	~
	_	ItIt	Top of Rock				××	+
597.5'	_	I+I+		79.5'		!		x
	80 -	1				{	7777	80.0
								N /
	_				i	!	Bentonite	
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		TAILUEIAN	IMSTALL	ATION			SHEET				
DRILL	ING LOG	South Atlantic	Har	twell	Lake		OF3 SHEETS				
PROJECT		Joden Meranere	In SIZE	MD TYP	OF BIT	4X5 1/2"dia,6'	rock hit %				
Clemson	Upper Di	version Dam	- 11. DATU	M FOR E	LEVATION	SHOWN (THE WEST)	o"fishtail				
				SL							
DRILLING	Upstrea AGENCY	<u></u>		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314							
Savannah	Distric	t		13. TOTAL NO. OF OVER- DISTURBED UNDIS							
HOLE NO.	(As shown on mbes)	drawing title PF-20	5A SURD	EN SAMP	LES TAKE		. 0				
NAME OF	DRILLER	<u></u>			R CORE B						
I. Brown			IS. ELEV	ATION G	ROUND WA	N/A					
DIRECTIO			HOM VERT.	HOLE		:	Feb 1984				
KAARMAI	CAL MINES			ATION TO		LE 677.0'	100 1704				
. THICKNES	S OF OVERBU					Y FOR BORING					
DEPTH OF	ILLED INTO	ROCK 11.3'			INSPECT						
. TOTAL DE	PTH OF HOL	€ 90.8′	Tha	ddius	J. Zie	lonka, Jr.					
LEVATION	DEPTH LEG	GEND CLASSIFICATION (Descrip	OF MATERIALS	S CORE	BOX OR SAMPLE NO.	REMAI (Drilling time, water weathering, etc.,	er lose, depth of				
-	<u> </u>	•									
	=	Riprap			ļ	NOTE: Cored					
						485 1/2"diamo					
	\exists				1	Reamed hole	wife"				
					}	rock bit.					
	5 —										
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	7				}						
			10.0'								
567. 1	10-				 	MOTE TO I					
		Embankment.				MOTE: Fisher 12.51.	1.81 7				
		immaniament.				*					
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647.n'	30	·			 						
		Continued on	sht 2		1	l					
				1	. (c.)	(
	=======================================	NOTE: Soils	isually field with the Unit								

B-21

PRILLING	LOG	(Cont S	heet) ELEVATION TOP OF HOLE	77.0'		Hole No.	PF-205A
ROJECT			INSTALLATION				SHEET 2
Clemson	Upper	Diver	sion Dam Ha	rtwell La	ke		OF 3 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV ERY	BOX OR SAMPLE NO	(Drilling time.	MARKS water luss, depth of st., if significant?
47.40"	30'	c	<u>d</u>	e	f		_g
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	_		Embanament Continued.	:			
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ļ	40		42	.0'			BLOW
			72		į .		
35.01		707					
	_		(SC) Red-brown, fine to m grained, micaceous clayey		<u> </u>		<u>'-1</u>
	-		SAND.		i		4
	45						4.
20.01			48	.0'			
		1919	(CM) 2 5: b1				•
		I + I +	(SM) Brown, fine to med.g ed micaceous silty SAND.	rain-			
	50 —	Itl	With minor clay.				
	_	ĬŶĬŶ					-
		[+]+					,
	_		Color change to reddish- brown.				5
		I	blown.				
	55 —	• • • •					<u> </u>
	_		Color change to light br	own "	3		<u>:</u>
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	60 —	• [• [ı			_
	907 -	+I+I	Color change to dark gre	у.			
	_	• [• [• [1			
		 	Dark grey & fine grained				-
	_	+1+1		!	4		
	65 —	+		1			-
	_	*	Color change to brown.		1		1_
		111			: !		
20.01		1	6	9.0'	1		-
0 8 .0'	_	7 - 7 -	(ML) Brown, micaceous lea		5		1
07.0'	70 -		SILT.	_/	<i></i> ار ــــ	BLOWS PER	
	_	1	Continued on sht 3	- '	1 1		ired to driv
į		i				1 3/8"ID sp	
	_	4		;		140 lb. ham	mer fallom
	_	†	- 22	:		30'.	
		4	B-22	1			
	- -	1		1			

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KILLING	LOG	(Cont S	heet) ELEVATION TOP OF HOLE	677.	.0'		Hole No.		205A
OJECI				INSTALLATION				SHEET	
Clemson	Upper	Diver	sion Dam	Hartwell		BOX OR		OF 3	SHEETS
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description		RECOV-	SAMPLE	(Drilling time.	water loss.	depth of
607.0'	ь70 '	c	d		ERY	NO	weathering, e	ιε. η εικπιρ Β	BLOWS
	_					-3-			
	_	!	(ML) Continued.						1
605.0'		9191	micaceous, lean	SILT. 72.0	†	6	•		
İ	_	 	(SM) Dark grey,	iina amaimad	1		· •		1
	=	 	micaceous silty		1		! 		3
	75 —	+ [+]	micaccodo bility		į		1 1		~
İ	_	+[+]) 		3
	_	 			i	!	NOTE:Scale	ahanaa	3
Ĺ	_	 	Top of Rock	79.5'	1	1	9 80.0'.	Change	4
597.5	=	• [•]			i		1		_
	eo—		(GRANITE CNEISS))			! 		
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Hole No. PC-208A SHEET 1 OF 3 SHEETS INSTALLATION DIVISION DRILLING LOG Hartwell Lake South Atlantic 1. PROJECT 10. SIZE AND TYPE OF BIT 4X5 1/2"dia, 6"fishtail & 11. DAYUM FOR ELEVATION SHOWN (TOW or MELL "rock bit Clemson Upper Diversion Dam 2. LOCATION (Coordinates or Station) 16+05, 30' Upstream 12. MANUFACTURER'S DESIGNATION OF DRILL 3. DRILLING AGENCY Failing 314 Savannah District 13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN UNDISTURBED DISTURBED 4. HOLE NO. (As shown on drawing title and tile number) 0 0 PC-208A 14. TOTAL NUMBER CORE BOXES N/A S. NAME OF DRILLER IS ELEVATION GROUND WATER N/A Brown 6. DIRECTION OF HOLE COMPLETED 16. DATE HOLE 25 Jan 1984 20 Jan 1984 TYPERTICAL TINCLINED _ DEG. FROM VERT. 677.01 17. ELEVATION TOP OF HOLE 7. THICKNESS OF OVERBURDEN 81.0' 18. TOTAL CORE RECOVERY FOR BORING \sqrt{f} 8. DEPTH DRILLED INTO ROCK 0.0' 19. SIGNATURE OF INSPECTOR 81.0 Thaddius J. Zielonka, Jr. 9. TOTAL DEPTH OF HOLE S CORE SOX OR RECOVERY NO. REMARKS CLASSIFICATION OF MATERIALS (Description) ELEVATION DEPTH LEGEND (Drilling time, water lose, depth of weathering, etc., if significant) 677.0' ď, X Riprap. Cement Bentonite Х Grout 10.0' × 667.0 Hile Dia. X Embankment. Х X SE × M X Х 1 Х S X 4 Х W, Х X X × 647.0' Continued on sht 2 NOTE: Soils visually field classified in accordance with the Unified Soil

Classification System.

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DRILLING	roe (Cont	Sheet)	ELEVATION TOP OF HOLE	677.0'			Hole	No.		PC-20	A8
OJECT					INSTALLATION						IEET 2	
Clemson	Upper	Dive	rsion	Dam	Han	twell		,			F 3 SH	EETS
LEVATION	DEPTH	LEGEND		CLASSIFICATION OF (Description		% CORE RECOV- ERY	BOX OR SAMPLE NO.	(Drillin	Ri g /ime. bering.	EMARK <i>u:alet</i> elc il	S · luss, dep ·significan	th of
647.0'	ы 30'	c		d		e	f			g		
	35 —		Emt	oankment. Cont	inued			X	×		×	x x x x x
	45				48.0	•		X	X	RISER	X X	x
629.0'	50		gra SAI	/) Red-brown in ained micaceou	us silty	•		Cement Benton Grout	ite X	SCH 40 PVC	X	<i>)</i>
	55		Co	lor change to	red-brown.			X X X	X	34" 50	X	X
	65			own & fine gra	ained below			×	×			X
607.0'	70		Co	ntinued on sh	t 3			×	× 			
					B-25			:				

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Clemson ELEVATION			heet) ELEVATION TOP OF HOLE 677.0"				SHEET 3
ELEVATION	upper	Dd		ell Lal	ke		OF 3 SHEETS
}	1	Diver	CLASSIFICATION OF MATERIALS	% CORE	BOX OR	RE.	MARKS water luss, depth of
_ f	DEPTH	LEGEND	(Description)	RECOV- ERY	NO.	weathering.	ic., if significant)
607.0'	b70'	c	d	e	<u> </u>	×	×
	=	1+1+	(SM) Continued. Brown fine			Cement X Bentonite_	××
	コ	 † † :	grained micaceous silty SANI	.		Grout X	172.01
		1+1+	granica miles			77/	W / /
	=		Dark grey to black.			Bentonite	2 2
	75 —				}	Seal /	1/ 7/ 01/
1	-	+++					> 76.0
	_	++++	Tan fine to med.grained.			Sand ···	á (: : : : : : : : : : : : : : : : : :
[With fine & coarse gravel			Backfill [78.0
	_	+1+1	below 79.5'.				WELL 80.0
	80-	}			}		
596.0'	=	1516	Bottom of Boring 81.0	 	 		
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DRILL	ING LO	IG OIV	/ISION	th Atla		INSTALL.	rtwell	Take		-	SHEET	SHEETS	
I. PROJECT			Sou	th Atla	antic		445 TV	A	4X5 1/2"di	a.6'		. h -i -	1
Clemson	Upper	r Diver	sion	Dam		11. DAYU	M FOR EL	EVATION	SHOWN (TBM a	MSL)	6"fis	htail]
2. LOCATION 16+10,						1	MSL FACTURE	R'S DESIG	SNATION OF DR	ILL			┨.
1 DRILLING	AGENCY						iling						4
Savanna 4. HOLE HO.	(As show		4 title			13. TOTA	L NO. OF EN SAMPL	OVER- LES TAKE	N DISTURBED		UNDIS	O	1
and His nu					PE-208A	14. TOTAL NUMBER CORE BOXES M/A						<u> </u>	1
s. NAME OF H. Brow							ATION GR						1
6. DIRECTIO	N OF HOL					16. DATE	HOLE	1 -	RTED		MPLET		1
₩ERTI	CAL	INCLINED			DEG. FROM VERT.				Jan 1984	: 20	6 Jan	1984	┨
7. THICKNES	S OF OVE	ERBURDER	56	.0'			ATION TO		Y FOR BORING		N/A		1
S. DEPTH OF	RILLED II	NTO ROCK	0	0.0'			TURE OF			نــــ	N/A		1
9. TOTAL DE	EPTH OF	HOLE	56	.0'		Thadd			nka, Jr.				1
ELEVATION		LEGEND	'		ATION OF MATERIA (Description)	ALS	RECOV-	BOX OR SAMPLE NO.	(Drilling time weathering	REMAI , was , etc.,	RKS er loss, d il signil	lepth of icant)	
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667.0'	1 2								X 6" Ho	ile	Dia.		上
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647.0	30		-	ontinu	ed on sht 2			+ -		71	<u> </u>	— —	+
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KILLING	LOG (Cont S	heet)	ELEVATION TOP OF HOLE	677.0'			Hole No.	PI	E-208A	
OYECL					INSTALLATION	.11	.1		SH	EET 2	-
Clemson	Upper	Diver	sion			rell La	ske		EMARKS	2 SHEETS	
LEVATION	DEPTH	LEGEND		CLASSIFICATION OF (Description		RECOV- ERY	SAMPLE NO.	(Drilling time weathering,	. u'aler	luss, depth o	ſ
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	_				48.0'	:		Bentonité	∤ <i>=</i> ′ ↓		
629.0'					46.0	<u> </u> 	<u> </u>	Seal	1/2	/ /	<i>,</i>
029.0	_	[[†] †	(S)	M) Red-brown	ine to med.	T.			1 1 1	///	/
	50 -	Itlt		ained micaceou				V//,	1 1	//	
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	_	I†I†		1 1	1	:	į			/52	•
		ItIt	LO.	lor change to	brown.			Sand		. 53.	<u>o</u> ':
İ	_	Itl	Co	lor change to	red-brown.	1	i	TC 1 C - 1 7	2.0'		
	-	Iţļ				i			CREE	55.	<u>; c</u>
621.0'	55	1 + 1 +					<u> </u>				
021.0	_	1	Во	ttom of Boring	3 56.0'	1	İ	ŀ			
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						,		Hole No.	PF-200A			
DRILL	ING LO	G DIV	/ision South At	lantic	INSTALL Har	ATION twell	l ako		SHEET [
. PROJECT		L	South At	Tancic	L			4X5 1/2",6"fi				
Clemson	Upper	Diver	sion Dam		11. DATE	M FOR EL	EVATION	SHOWN (TOM a MEL	rock bit.			
LOCATION	(Coordin	elee or Sta	sion Dam		1	MSL						
16+00,	AGENCY	stream	· · · · · · · · · · · · · · · · · · ·		Failing 314							
Savanna	h Dist	rict		,								
L HOLE NO.	(As show	on drawn	u title	77 2004	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 7							
L NAME OF			<u>i</u>	PF-208A	14. TOT	L NUMBE	R CORE E	OXES 1				
H. Brow	n				18. ELEV	ATION G	OUND WA	10	/A			
. DIRECTION	OF HOL				16. DATI	HOLE		:	OMPLETED			
E VERTIC	AL D	NCLINED		_ DEG. FROM VERT.		9 Jan 1984						
. THICKNES	S OF OVE	RBURDEN				ATION TO		Y FOR SORING N/				
. DEPTH DR	ILLED IN	TO ROCK	12.5			ATURE OF			A			
. TOTAL DE	PTH OF	HOLE	95.0'		Thad	dius_J	. Ziel	onka, Jr.				
ELEVATION	DEPTH	LEGEND	CLASSIFI	CATION OF MATERIA (Description)	LS	% CORE	BOX OR	REMA (Drilling time, we				
677.0'	ە' ب			4		ERY	NO.	weathering, etc.	, if eignificand			
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KILLING	LOG (Cont S	ineet) ELEVATION TOP OF HOLE		·	· · · · · · · · · · · · · · · · · · ·	Hole No.		F-208A
osect Clemson	Upper	Diver	sion Dam	installation Hartwel	1 Lake	2		SHI	EET 2 3 SHEETS
7	-		CLASSIFICATION OF	MATERIALS		BOX OR	R	EMARKS	,
ELEVATION	DEPTH	LEGEND	(Description		RECOV. ERY	SAMPLE NO.	(Drilling time, weathering,	water	luss, depth of agraficant)
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629.0'	コ	III	(SM) Red-brown f				>		1
ļ	50	. [† [†	grained micaceou	s silty SANI			× X	5	.\
!	<i>7</i> 0 —	III	Color change to	hrown.					
i i	7	I	- COLOT CHAIRE CO	orown.		į	× ×	97	X
		III	·				×	1	X
i	7	IţĬţ	Color change to	red-brown.				SCH	``
j	55	÷Ĭ∳Ĭ∳					X	Š	Χ.
		. [† [†					×	=	.\
	3	IţĬţ					X	W	X \times
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A1661110	100	Cont	Sheet) ELEVATION TOP OF HOLE		77.0'		Hole No.		-208A
ouct Clemson	Upper	Diver	sion Dam	INSTALLATION Hartwell	Lake			SHEE	ET 3 3 SHEETS
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF		% CORE	BOX OR		MARKS	
607.0'	BO'	C	(Description d) 	ERY	NO.	(Drilling time, weathering, e	ic. if no	iss, aepto of (nifican:)
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			grained micaceou	is silty SANI		1	Cement X		λ^{-}
j	=		Dark grey to bla	ick.			Bentonite		× ×
}	75	• 1 • 1					Grout		
1	·	 					× ×		X ×
	7	† [† [Top fine to god				X		××
	3	†] †]	Tan fine to med.	grained.			× ×	4	X
		. • • •	With fine & coar	se gravel.			×	ÜΙ	XX
	80						X X	K1S	X
	\exists	I	Top of Rock 8	32.5'		1	,	. ن	X
594.5	-	· I • I •					X	<u> </u>	λ
	\exists	الم <i>اليور</i> س	(GRANITE GNEISS)				X = X		x 84.0
	85	77 V V	wea., mottled browhite, micaceous.				7777	*	777
	٠, ٦		white, micaccous	· !	j		Bentonite	I	
į	7						Seal	300	
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PF-208A Hole No. INSTALLATION SHEET 1 OF 3 SHEETS DRILLING LOG South Atlantic Hartwell Lake 10. SIZE AND TYPE OF BIT 4X5 1/2"dia 6"fishtail & 11. DATUM FOR ELEVATION SHOWN (TBM & MSL) "rock bit 1. PROJECT Clemson Upper Diversion Dam
LOCATION (Coordinates or Station)
16+00, 30' Upstream 12. MANUFACTURER'S DESIGNATION OF DRILL 3. DRILLING AGENCY Failing 314 Savannah District

4. HOLE NO. (As shown on drawing title and tile number) 13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED UNDISTURSED PF-208A 14. TOTAL NUMBER CORE BOXES S. NAME OF DRILLER IS. ELEVATION GROUND WATER H. Brown N/A COMPLETED 16. DATE HOLE 16 Jan 1984 19 Jan 1984 WERTICAL MINCLINED DEG. PROM VERT. 17. ELEVATION TOP OF HOLE 677.0 7. THICKNESS OF OVERBURDEN 82.5' N/A 18. TOTAL CORE RECOVERY FOR BORING 12.5' S. DEPTH DRILLED INTO ROCK 19. SIGNATURE OF INSPECTOR 9. TOTAL DEPTH OF HOLE 95.0' Thaddius J. Zielonka, Jr. S CORE BOX OR RECOVERY NO. REMARKS CLASSIFICATION OF MATERIALS (Description) ELEVATION DEPTH LEGEND (Drilling time, water loss, depth of weathering, etc., if significant) 67%.0' ĸO' f NOTE: Cored riprap w/ Riprap. 4X5 1/2"dia. bit. Reamed w/6"rock bit. 10.0 667.0' NOTE: Fishtailed to Embankment. 48.C'. 647,01 Concinued on sht 2 NOTE: Soils visually field classified in accordance with the UniFied Soil Classification System.

B - 32

	LOG	(Cont S	iteet) ELEVATION TOP OF HOLE		7.0'		Hole No.	PF-208A
Moject Clemson	Ilanca	Divos	ton Dam	INSTALLATION Hartwell La	ko			SHEET 2 OF 3 SHEETS
			CLASSIFICATION OF		% CORE	BOX OR		MARKS
ELEVATION	DEPTH	LEGEND	(Description		RECOV- ERY	SAMPLE NO.	(Drilling time, weathering, et	water loss, depth of c., if significant)
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629.0'								BLOWS
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ì		Idid	Color change to	rod brown				24
		ItIt		red-blown.		2		
	55	1 + 1 +						34
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	60	1				3		23
ĺ	_]]	Brown & fine gr	ained below				34
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	65 <u> </u>	+1+1						14
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	_]]				4		31
		1 4 4 4						1
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607.0'	70 _	'`` '-		. 3			BLOWS PEP F	
			Continued on sh	נ ז			Number requi	ired to drive
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RILLING	roe (Cont S	heet) ELEVATION TOP OF HO	67	7.0'		Hole No.	PF-2	
DIECL				INSTALLATION				SHEET 3	HEETE
remson	Upper	Diver	sion Dam CLASSIFICATION OF	Hartwell L		BOX OR	REM	ARKS	HEETS
LEVATION	DEPTH	LEGEND	(Description		RECOV-	SAMPLE NO.	(Drilling time, weathering, etc.	cater loss, de	
507.0'	ь70 '	c	d		e	f			BLOWS
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		[•] • <u> </u>	(SM) Continued. grained micaceo		7				15
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	= 1	[[Dark grey to bl	ack.					_
	75	$[\phi]\phi$							32
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	⇒ ;	┇ ╞┋ ╞┆	Tan, fine to me	d.grained.					
	= 1				1	6			49
	4)								49
	80-7	[lat]	With fine & coa	rse gravel.					
ĺ									<u>49</u>
2, 51	7		Top of Rock	82.5		r	NOTE: Scale	ahanaa	7 . 8
594.51	7:	(7.1)			-	7 1	@ 90.0'.	change	90
Ì	\exists		(GRANITE GNEISS) Intenselv		<u> </u>			90
	85		wea., mottled br						100
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	90-1/2								
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REHABILITATION OF CLEMSON UPPER DIVERSION DAM CONSTRUCTION FOUNDATION REPORT

APPENDIX C

Conrete Quality Control - Core Boring Logs

TABLE OF CONTENTS

	Page
Test Panels - CQC boring Logs	C-3
Production Panels - CQC Boring Logs	C-59

TEST PANELS

CQC Boring Logs

	LOG	Cont S	heet) ELEVATION TOP OF HOLE	G75.0			Hol	e No. T	-1-1 SHEET 2	
PROJECT	-au : 1.	e - D	diversion Dam	Hartwel	Lake				OF 9 SHEET	s
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF	MATERIALS	% CORE RECOV- ERY	BOX OR SAMPLE NO.	(Dri	REM. illing time, wi eathering, etc.	ARKS ater loss, depth , if significant)	of
69.02	7. b	<u> </u>	<u>d</u>		<u>e</u>	f	Pull .		inued)	
	=		CONCRETE (Contine Machine break G		}		Pull .	J (Can	-inued)	
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			Mechanical break	< @ 6.8 <i>5</i> .	100%	 				
	7 -									
	=		Low angle machin	c break		Box 1				
	_		from 7.16 to 7.] ′	_co	7/2		
			Low angle break	from 7.60		}		7.02		
	8		to 7.70 at end .	f pull.			Pull	ш		7.95
	" =		}				From			
							То	17.70		
	=	1				İ	Run	9.75		
]			99.690	,	Rec	9.77 0.14		
	9 —		High angle Capprox.	60°) break)		U.L.	0.14		
	=		from 9.02 to 9.40) .		ļ				
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	2 =		- Mechanical break	(@ /		10.02				
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		3								
1		-			1					
]	/3 -	4			}			•		
\		3								
	-	1	-Mechanical break	∨ @ /3.59.						
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661.0	14-	-	Continued on S	Sha at 4+ 2			-	 -		
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RILLING	LOG (Cont S	heet)	ELEVATION TO	OF OF MOL	£ 675.0				Hole	No.			4
OJECT						INSTALLATION						SHEET	3 SHEETS	1
Clenica	· lop	cı Di	versi	ch Dair			<u> </u>	Loke	BOX OR			of 9	SHEE!3	ㅓ
ELEVATION	DEPTH	LEGEND			TION OF Description	MATERIALS		RECOV. ERY	SAMPLE NO.	(Drilli wea	ing time.	water loss. tc., if signi	depth of fican:)	1
1.02	1:4 b	c	2011	RETE (d to			е	f	Pull 4	+ (C)	ntinuc		\dashv
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	} ′ ′ -	∄						}	}	To	27.	67		
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DEPTH 22b		CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR	SHEET 4 OF 9 SHEETS REMARKS (Drilling time, water loss, depth of
DEPTH 2 2 b	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE	BOX OR	REMARKS
22b	}	(Description)	RECOV-	SAMPLE	(Drilling time, water loss, debth of
	с	~ d	,	NO.	weathering, etc., if significant)
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26-	7				
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22-	7				Pull 6
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-	-				To 37.30
	7			1	Run 9.63
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32 -	7				Note: Scale change et 32.00 feet
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DRILLING	LOG	Cont S	heet)	ELEVATION	TOP OF HOL	17.5.0				Hole	No.		
ROJECT						INSTALLATION		, , .				SHEET	5
Clems	en Up	per D	ivers				twe/	Lak	<u>(e</u>			OF 9 SI	HEETS
ELEVATION	DEPTH	LEGEND		CLASSIFIC	CATION OF (Description	MATERIALS	ļ	% CORE RECOV- ERY	BOX OR SAMPLE NO.	(Drill wea	line time, u	vater loss, de if significa	pth of
41.02	340	с			<u>d</u>			<u> </u>	f	0 11 6	10 +	inued)	
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	_	}	ļ				}						
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	37 —	7							4	_ CD 37	25		37.30
	=	1							1	Pull			
) =	1	}						}	From	, 37.30		
	-	1	- Micc	hanica	i break	< ₾ 38.20).		1	To	47. 3 <i>5</i>		
	=	1							}	Run	10.05		
	39 —	}					Ì			Rec	9.99		
	31 -	-								CL	0.06		
	=	7						ı		u.L.	0.01		
	-	7											
	=	1						99.9%					
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	-	7							Box				
	45 —	7						[5				
		1	LM.	chanic	al brea	k @ 45.	67.	į					
	1 _	_	',			_ , _ ,							
	_	_							1	1			
	-	4								-			
	47 —									-CD 4	725		47.35
		7								Pull			
] -	7								From	47.3.	5	
	-	7						100 %	,	To	57.2		
	-	7						}		,,,			
626.0	49 -	1	_					↓ _		-	_(Cont	inued)	
- 	' :	Ⅎ	C	ontinu	ed on :	Sheet #	6.						
	-	Ⅎ						1					
	-	7											
		7				С	-8	1					
		7								1			
<u> </u>	_	=							1	ĺ			
		_											
ı	1	7	ł					1	1	1		-	

,

DRILLING	LOG	Cont	Sheet) ELEVATION TOP OF HOLE			Hole No. T-/-/
MOJECT			INSTALLATION			SHEET G
Clemson	Uppe	<u> </u>		well Lak	BOX OR	OF 9 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOV- ERY	SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
626.02	495-	<u> </u>	CONCRETE (Continued)	-	f	8 / 6 / 6 + 1
1	\exists		Mechanical break	ļ		Pull 8 (Continued)
-	⊣		@ 49.15.)	j	From 47.35
Ì			_ 13.			To 57.27
	-			Ì	Box	Run 9.92
	7			ĺ	5	Rec 10.07
1	51					CG 0.15
]	∃			100%	Į	u.G. 0.07
	\exists			-		
ļ	7				1	
	⇉			}	E2 21	
	53 —		Mechanical break @ 5	2.81	52.8/	
}	~~ 		0.01-0.02' deep pits over			
Ì	コ		1/8 of core from 52.85	1		
Í			to 53.00.			
	\exists		}			
ł	_		- Mechanical break @ 54	4.70.	}	
	55-					
	7					
	\exists				Box	
1					6	
1	∃		Mechanical break @ 56.50	a.		
	, ,	·	30.3			
	57	ļ		ļ	1	CD 57.25 57.2
1	コ					Pull 9
						From 57.27
					}	To 67.35
	-					Run 10.08
)	59	1		į	}	Rec 10.07
	=			1	-	CL 0.01
	=			}		u.G. 0.10
Ì			Mechanical break @ 60.0	05. 100%		
}	_	I		100 78		
İ	, 				1	
	61					Note: Scale change
	⊐					at 61.00 ft.
ļ				}		
ļ	_					
1	\exists]	_
J	62					** -
	7	ł			1	
}	\exists				1	
		}				
}	=					
612.0	63-				 	
6,2,0	· -		Continued on Sheet # 7.			
1		1		1		
		i		į	}	
		l			[
ļ	7		_	-9]	
}		ł				
		ı	1	ì	1	•
l		ļ.			1	

DRILLING	roe (Cont S	heet)	ELEVATION TOP OF HOLE	675.0			Hole	No.	T-1-1	
MOJECT .			n.		INSTALLATION					SHEET	7
Cless	7ch /4	oper	Viver		Hartwe		SOX OR		REM	OF 9 S	SMEETS
ELEVATION	DEPTH	LEGEND		CLASSIFICATION OF (Description		RECOV-	SAMPLE NO.		ing time, w thering, etc.	ater loss, d	
612.02	43 p	С	<u></u>	d		e	f.			g	
		_	CONC	RETE (Contin	ued)		Вох	Pull 9	(Cont:	inued)	
						1	6				
	7		L			{	63.77				
	1.4		\ <u></u>	Techanical bre	aks @	ŀ					
	,,,,,		۱/ ۵	55.77 end 64.6	4.	!					
	7		Γ΄				<u> </u>)			
	-					100%		!			
!	7		849	an to leave Pa	inel T-1		Ì				
	/_ =			crete @ 64.70		ļ					
	65 —		N .	hine break @]				
1			72 5ep	thick piece of arated from .	main some	(!				
	4		by	m 64.85 to 65	eggregate						
			· /0	edan reconery .	5 Panel T-10	1	}				
	, , =		\sqsubset	onerete @ 65	5. 8 <i>3</i> .	}	ļ				
:	66 -		1	Tachine breaks	in T-10						
			_/ °	ionerete @ 65	191 and 66.35.	1					
!			١ ١	tachine break:	in both T-1	1					
;	=			.T-10 concret	c @ 66.62.						
	=		D− 11′	ichine breaks.	in T-10		Box				
	67 -		Co	ncrete @ 66.	78 + 66.90.	1	7				
							†	-CD 67.	22		4232
							}	Pull	10		
			}					From	67.35		
	=		_,	Tachine break in	. Tall consect			To	70.35		
	68-		'	M / R NIL				Run	3.00		
	=		-!	Tachine break concrete @	in T-1	96.9%]	[2.84		
	_		`	(P & . (/ E.	76.7 %	}	Rec	0.16		
			.			1	1	CL	0.70		
	_ =	1		covery of T-1			1	U.L.	<i>0.</i> 0	,	
	69 -	V	Trom	68.87 to 69	7.37.	1	1				
	=	M		Machine break		1					
		7	1 /	concrete @							
		H		Machine break Concrete @ 69.	in T-10	(
	_ =	Н	- itac	hinc break in	T-1 concrete	1	1	-	4		
	70		0	9.89.			1	-CD 70.	.15		
	=					}	1				70.35
						0115		Pull 1			
	=					94.5%	1	From	70.35		
tou -	_, =					}	1	To	80.45	5(Centi	nucdi
604.0	71-		Co	ntinued on 5	hect # 8.	_					~~0/
	=				-		ł	}			
	[
	=				C-10	-	}				
] =						1				
	_	1						[
	1 =	1				}	}	}			
		1	1				1	¦			

DRILLING	rog	(Cont :	Sheet)	ELEVATION	TOP OF HO	675.0				Hol	e No.	T-1-1	
ROJECT						INSTALLATION				· <u> </u>		SMEET &	
Clema	con U	pper	<u> Dive</u>	rsica	Dam	Har	twel	Lak				OF 9 SHE	ETS
ELEVATION	DEPTH	LEGEND		_CLASSIFIC	CATION OF	MATERIALS		% CORE RECOV- ERY	BOX OR SAMPLE NO.		lling time. w	IARKS vater loss, dept i., if significan	
04.02	7/b	c	\ C	NCRET	<u>d</u>	tinued)		•	f	Pull	11 / 6	8 ontinued	
		11	1 1			in T-1		ĺ	1	From			,
	_	¥	ے ک	oncret	e @ 7	1.01.				-	80.45		
				Recover	y of T	1.01. I concr	ete			To			
	_			enas Mach:	'@ 71	37.			Ì	Run	10.10		
				Calacia	e orea	Ks in T 71.48 + 1	-10	94.5%		Rec	8.98		
	72 -					//·T0 # /	1.77.	1 1.5 70		CL	1.12		
	_	ĺ	1	^ <u> </u>	+ . 11 .	. 0		İ	Box	u.L.	0.52	2	
	=	l	\	etaut.	CAITY	in Pane	1-10		7				
j		Í		3 C & P C 1)	ng @ :	12.63.							
	_		-Mac	hine b	reak @	72.78.			1				
			,,,,,					ĺ	ĺ				
	73 —												
								ĺ					
	_							[
1													
			- Mec	hanical	break	(@ 73.7.	5.	1	7 3.7 <i>5</i>				
Í	7//								1				
	74 —												
ĺ													
									:				
								(
ļ			1/2" 1	n:t	. 04 1	ore from							
[75 —		74 2	sep p.c 5 to 7	, ,, ,,	/	•						
ļ	') ' ' ' ' '	/	J. 6J.			1		<u> </u>			
								[
			- Mai	chine	break	@ 75.67.			Sox				
	-		Sen	in it.	sand +	clay fre	1009		8				
	76				75.77.	,							:
	=	 						j					
	_												
]		}	Han	ا مینظ	א בסעה	@ 16.55							
	=		'''		, - - N		•]					
į	=	1	}]					
	77 —	{	į										
] =	1	- Mcc	hanica	break	@ 77.4/	•						
	=	1						1					
]]]			1
] =	}						1		1			
	=	1											
	78	1											
	-	1								j	•		
] =]						[
	1 -	1						1		j			
1	=	1											
		}						}		}			
596.0	79		Con	itinue	on Si	cet #9.							
	=	1	1		·	· · · · · · · · · · · · · · · · · · ·				j			
		1						1					
	-	1	}				C-11]			
	1 =	<u>t</u>	1						}]			
	=	-						}	}	}			
'	=	1						-					
] =	;							1]			
]	1					ł	ł	ł			

OJECT				6.75.0			Hole No. T-	
				INSTALLATION	1 1		l -	HEET 9
Clamsa	n Hope	r Dive	rsion Dam	Hartwell	Lake % CORE	BOX OR	REMARI	(S
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description		RECOV- ERY	SAMPLE NO.	(Drilling time, wate weathering, etc., i)	loss, depth of
26.02	/9 b	C	CONCRETE (Conti	hued)	e	f	Pull 11 (Cont	inued)
	7		Angular contact		0.1.69	! !	Mate . Anguar . /	ft. rod
16.6		//	bottom of concrete	2 79.37	94.5%	1	drop from	n 79.4-80.4.
		\ /	From bottom of	concrete			-CD 79.65	
	. 1	\ /	to 80.72.		Í			
	80	V						
	" =	Λ					į	
	=							80.45
		// \		80.70	}		Pull 12	
94.3	_	<u> </u>	GRANITE GNEIS	80.72 S	1	Box	From 80.45	
ļ	81 -		Slightly weathered	, salt-and-)	8	To 84.50	
j	°′		slightly weathered pepper color, slig	htly foliated.	82.1%		Run 4.05	
ļ] =				J 52 70		Rec 3.80	
	_				RQD		CL 0.25	
	=				49		U.L. 0.83	
	82						1	
	02 -					-	-	
	=	1						
		1						
	=	İ						
	-	1			-			
	83 -	4						
	=	1			}	}		
		1	73 50 20 50 11	. 4				
	=	1	83.50 - 84.50 High	ly weathered.				
	-	1						
	24-	1						
	_	}				4	-CD 84.28	
590.5			Bottom of Hole	84.50	<u> </u>			84.50
5 70.5	-	}						
		-			ļ			
	-	4				{		
] =	-						
	=	7			1			
	-	7						
	=]						
	-	7						
	-	7			1			
	-	7			1			
	-	7						
	-	7			1			
	1 _	1						
		∄						
		_						
	-	-		C-12				
	-	-		C-12				
] =	7			1	}		
	-	7						
	:	7			1			

		<u> </u>							Hole Ne.	T-1-2	
neu i	ING LO	~	VISION			INSTAL				SHEET /	7
I PROJECT	-100 -		outh	AtL	<u>vt.c</u>		-Ewell		0.0	OF 9 SHEETS	4
Clemso	n Hai	2Cr D;	۔ ساج وا	: a	Da m	11. DAT	UM FOR EL	EVATIO	R Diamond	,	\dashv
2. LOCATION	(Coordin	ates or Sta	wion)	<u> </u>	<u>/</u>	l MS	iL.				
4+82 1 DRILLING						1 _			GNATION OF DRILL		
50.00	04 0	istrict				13. TOT	ling 3 AL NO. OF DEN SAMPI	OVER-	DISTURBED	UNDISTURBED	4
4. HOLE NO.	(As show mbos)	n on drawi	ing title		T-1-2	BUR	DEN SAMPI	LES TAKI	EN N/A	N/A	_
S. NAME OF	DRILLER			<u></u>	1 - 1 - 1		AL NUMBE			8	4
C.D. J						18. ELE	VATION GE		N	/A	4
S. DIRECTIO			, _		DEG. FROM VERT.	16. DAT	E HOLE	•		23 Jan 84	
					-	17. ELE	VATION TO				7
7. THICKNES				CRET	<u> </u>	18. TOT	AL CORE F	ECOVER	Y FOR BORING	,	
a. CEPTH DE					0:0		ATURE OF				Ï
S. TOTAL DE	EPTH OF	HOLE	· ·		24.3		2 CORE		REMA	DVS	-
ELEVATION	[LEGEND	•	LASSIF	ICATION OF MATERIA (Description)	,r2		SAMPLE NO.	(Drilling time, wat	er loss, depth of	
67 <u>5.</u> 1•	06	6	CON	RET	<u></u>				9		+
	-	}		-KE /					Pull 1 From 0.00		F
] =	}	1					1	To 1.55		F
	_	3	-Mac	hina	break @ 0.67.		98.5 %	1	Kun 1.55		F
	=	<u>j</u>	'-'				1	}	Rec 1.35		F
	\	1						•	CL 0.20		E
	=	}	1						u.L. 0.02		F
		}	1				<u> </u>	_	-CD 1.37	1.55	F
	1 = = = = = = = = = = = = = = = = = = =	}					1	6°x	Pull 2		F
		}						′	1	To 2.77	
	2 —	}					100 %	İ	Run 1.22	Rec 1.43	Ξ
	=	1	1				}	}	CG 0.21	u.G. 0.05	
	_	1					1			-	F
		1							00 3 35	~	F
		1	1					1	Pull 3		E
	3 —	1	<u> </u>				1	}	From 2.77		E
	=	‡			ne breaks@ 3	.16,	}]	To 7.85		E
		‡		3.7 <i>5</i> ,	4.18, + 4.67.				Run 5.08		E
	=	1	۲/				100%		Rec 5.10		E
	=	1	Η				1	1	CG 0.02		E
	5 	1					1				F
	=	1	1]		Note: Scale ch	ange ft	F
		1								. 6.	
] =	1	1								
	_ =	7	L Maa	hau:a	al break @ 6.90	1					E
	7 =	1	'''	HENIC	at ofear & 6.70	••			_		E
	=	1							20.		_=
		1					 	}	CD 7.85 Pull 4	7.85	上
	=	1	1				100%		From 7.85		F
] , =	1					""			Continued)	E
566.1	-	1	Co	ntinuc	ed on Sheet #2.	-	 			Fige (uncd)	E
	=	7					1				F
		7					1				F
	=	1			(2-13	}]			F
	=	1					1		1		L
1	-		1				i				, _
İ	=	7	ļ				['			Ė

	LOG	(Cont S	iheet)	ELEVATION		675.1				Но	e No.	T-1-2	2	
OJECT						INSTALLAT						SHEET	2	
, / lange	n Mer	20 1);	yersi			MATERIAL		Lake	BOX OR	<u> </u>	RE	OF 9	SHEETS	
LEVATION	DEPTH	LEGEND		CLASSIFIC	(Descripcio		5	RECOV-	SAMPLE NO.	(Dr	illing time,	water loss, itc., if signi	depth of ficant)	
6.12	9 Ь	c	2 2 2 4 6	05.75	<u>d</u>			e	f		 	8		
	=	1	CONC	REIE	(Cont)	inucd)			}	L		ntinu	(4)	
	_	1						ĺ	Box	From	7.85			
	_								'	To Run	17.94 10.09			
	_		Meci	hanical	break	@ 10.	49.	1	10.49	Rec	10.10			
						_ ,	• ••			CG	0.01			
	'' =	}	ļ ;						Ì	U.G.	0.05			
ì	_		ł 1					1		ĺ				
	_	•	ļ					1		}				
			İ					100%		•				
	_	1)					100 /8						
	13 —	}]		}				
								1						
	_		Tites	nanica	1 bree	K @ 14.	28.							
	15 —		Ì					l	_					
	13 -]	}					}	Box					
Ì]							2					
										Ì				
	_									<u> </u>				
1	<u> </u>							1		! !				
ŀ	17									[
1]		1				
	7 7		Mee	hanical	break	C 17.5	54.						(7	۵
	_									-CD I			17.5	14:
										From		L		
	. 7							!		To	28.20			
	19 —									Run	10.0			
	77									Rec				
								ļ		CG	0.00			
1										U.L.	0.00			
			-Mac	hine b	reak C	20.45	•				0.5			
	21							100%						
									2.45	1				
			⊢ High	angle	break	K from			21.65					
ļ			21.1	5 t.	2 <i>1.65</i> .			1						
	22 —		- Angi	der be	eak f	rem 21	75				· - ·			
1			to	22.10.	J., .			1	Box					
				-					3					
									}					
ļ	7													
2./	23 —	<u> </u>						<u> </u>	L					_
			Con	Linued	on She	eet #3	3.				_	_		_
ĺ														
}	7						C-14							
							C-17							
į	7									į				
ì	7													

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,

	,		heet) ELEVATION TOP OF HOLE			Hole No. T	1000
PROJECT			INSTALLATION		<u> </u>		SHEET 3
Clemso	n Har	er Di	version Dan Hartwe	II Lake			OF 9 SHEETS
ELEVATION	DEPTH	LEGEND	-CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO.	REMA Drilling time, we weathering, etc.,	ster loss, depth of
652.F	23 b	c	d	•	f	<u> </u>	
	_		CONCRETE (Continued)		[Pull 5 (Cont	·nked)
	_		-Angular break from 23.05				
			to 23.32.		(
	_						
[24 —			1			
	_						
}	_		Angular break from 24.10	}]		
ŀ	_		t. 24.43.				
,	_	}	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	100 %	}		
		Ĭ		1			
}	25 —	1		}	}		
1	_	<u> </u>					
		<u> </u> 	-Mechanical break @ 25.45.				
]		1					
}	=					}	
	26						
	=	! \	High angle break from	1	Box		
1	=	1	25.70 to 24.20.		3		
		1	20,00				
] =	7					
{	=	1	1				
	27 —	‡					
	=	1					
] _=	1			1	1	
	-	1				1	
	=	7					
	28 -	1			-	CD 28 00	23.00
!	! -	1	}			Pull 6 From 28.00	
] =	‡				1 -	
		Ⅎ		1		To 38.10 Run 10.10	
}	} =	}	}	1	j	Run 10.10 Rec 10.05	
1	20	7				1	
1	29 —	1					
	-	1		100%		U.G. 0.05	
		-		100 /			
	-	_					
	-	<u> </u>					
	30 -	-	-Mechanical break @ 30.12.				
	1 -	7	THECHANICAL Dreak & JU.12.				
}	}	7					
	-	7			}		
		₫					
644.1	21	1					
16 F T. 1	31 —		Continued on Sheet # 4.				
	-	7					
-		7					
] :	d	C-15				
	1 -	\exists					
1	1 _	7	1				
1	1		·			•	

RILLING	LOG	Cont S	heet) ELEVATION TOP OF HOL	675.1			Hole No	o. T-1-2	
DJECT		·		INSTALLATION				SHEET	4
	on Ho	per D	iversion Dom	Hartwe	ell Lake			of 9	SHEETS
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF		% CORE RECOV- ERY	SAMPLE NO.	(Drilling t weatheri	me, water loss, a ng, etc., if signific	epib of ant)
4.12	316	с	<u>d</u>		- t	f	Pull 6 (Continued	7
	=		CONCRETE (Con	Tinued)		8 • ×	Pull 6	CONCINCO	,
	_					3			
	-				1	31.69			
	_	}	-Mechanical break	° € 31.69.					
	=	_							
	32 —		Ì			1			
	=		Angular break fr 31.97 to 32.27.	om					
	_	1	31.97 to 32.27.						
	[=	7							
	=	1			ĺ				
	33 —	1				}			
	=	1			}	}			
	_	1							
	-	1			100 %				
		1		.	100 10				
	34	1	-Machine break (<i>≅ 34.02.</i>					
	-	1				Box			
		4				4			
	=	‡				}			
	-	₫				1			
	35 —	₫				(
	1 -	_							
	1 _	-	-Mechanical brea	K @ 35.44.					
		-							
	36 -	∃							
		∃							
		\exists							
		3				}	}		
		3				}			
	37 —	7			Į				
		7			1	İ			
		7				1			
		3							
		7							
	38 -	7			<u> </u>	-	-CD 38.0	0	38.1
		コ					Pull 7	38.10	
		7					From		
		7					To	48.03	
		7				ĺ	/ / /	11 میں۔+	
36.1	39 -	7	- Continued on	CI+			. Con	tinued)	
		7	Continued on	Jheet 开与	}	}			
	}	7							
	-	7		C-10					
				(* - / (ļ		
	_	ゴ					}		
		4	1		l				

RILLING	LOG	Cont S	heet) ELEVATION TOP OF HOLE	75.1			Hole !	No. T	- / - 2 SHEET 5	
DJECT				INSTALLATION	1 14-				OF 9 SHEETS	.
Clems	en llej	per Di	version Dam	Hartwell	% CORE	BOX OR		REMA	DK S	
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description	MATERIALS)	ERY	BOX OR SAMPLE NO.	(Drilling weathe		iter loss, depth if significant)	of
6.12	396	С	<u>d</u>			f	0 11 7	10	tinued)	
	=		CONCRETE (Cont	inueaj		Į		38.10		
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RILLING	roe (Cont S	heet) ELEVATION TOP OF	675.1			Hole	No. 7	-1-2	
OJECT				INSTALLATION					SHEET G	İ
Clems	on Upp	er Div	versien Dam		· 11 Lake	BOY OF		REMA		
ELEVATION	DEPTH	LEGEND	-CLASSIFICATION (Descrip	OF MATERIALS	RECOV. ERY	BOX OR SAMPLE NO.	(Drilli weat	ng time, we	iter loss, depth of if significant)	
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	48 -	1)		Pull 8			
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ILLING	roe (Cont S	heet) ELEVATION TOP OF HOU	75.1			<u>Hole</u>	No. 7	-1-2	
JECT				INSTALLATION			_		SHEET 7	15
Clemse	n Upp	er Div	ersion Dam	Hartwe	1 LAKE	BOX OR		REM	ARKS	
EVATION	DEPTH	LEGEND	CLASSIFICATION OF	MATERIALS	RECOV-	BOX OR SAMPLE NO.	(Drillin weath	g lime, w ering, elc.	ater loss, depth , if significant	, of
2.12	55 b	c	d d		<u> </u>	f	Pull 8	(Can)	s tinued)	
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	=	4					0 11			<i>57.93</i>
	58	1					Pull 9		2	
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	57-	-					С и.			
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KILLING	roe (Cont S	heet) ELEVATION TOP OF HOLE	7 <i>5</i> .1			Hole No. T-/	-2
OJECT				INSTALLATION			SHI	हा हैं
Cleme	on Up	per D	iversion Dam	Hartwel	1 Lak	<u>{c</u>		9 SHEETS
LEVATION	DEPTH	LEGEND	GLASSIFICATION OF (Description		% CORE RECOV- ERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water weathering, etc., if s	loss, depth of
7.12	66 b	с	d		e	f	<u>g</u>	
			CONCRETE (Con	tinned)			Pull 9 (Contin	ued)
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DRILLING	LOG	Cont :	Sheet) ELEVATION TOP OF HOL	75./			Hole No. 7	- I- 7
PROJECT				INSTALLATION				SHEET 9
Cleins	on Up	oer D	iversion Dam	Hartwell	Lak	ر		of 9 SHEETS
ELEVATION	DEPTH	LEGEND	_CLASSIFICATION_OF (Description	MATERIALS	% CORE RECOV. ERY	BUX OR SAMPLE NO.	REM. (Drilling time, w. weathering, etc.	ARKS ater loss, depth o , if significant)
593.32	82 b	с	d		e	f		8
			GRANITE GNEIS:	(Continued)	1			
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	84-				}			
570.3			Bottom of Hole 8	'4.8		 		8
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							Hole No.	T-4-1	
DBILL	ING LO	VG 01	VISION	INSTALL				SHEET	
1. PROJECT	-140 -		Touth Atlantia		AND TYPE			OF 7 SHE	ETS
		D	liversian Dam				R Diamand		
2. LOCATION	Coordin	etee or Sta	ation)	MS	L				
5+34 3. DRILLING				1 _			GNATION OF DRILL		
Savano					ling 3		DISTURSED	UNDISTURS	<u></u>
4. HOLE NO.	(As show	n on drawi	- ;	OUR!	AL NO. OF DEN SAMPL	ES TAKE	N/A	N/A	-
L NAME OF			T-4-1	14. TOT	AL NUMBE	R CORE E		3	
4 D. 3				IS. ELE	VATION GR	OUND WA		/A	
6. DIRECTIO				IS. DAT	E HOLE	STA		MPLETED	
X VERTIC	CAL [NCLINED	DEG. FROM VERT.					2 Jan 84	
7. THICKNES	5 OF 944	ROURDE	+ CONCRETE 83.05	ļ	VATION TO		<u> </u>		
S. DEPTH OR					AL CORE R		Y FOR BORING	99.2	
S. TOTAL DE	PTH OF	HOLE	28.40		2 RRcia				- 1
			CI ACCIDICATION OF MARCH		* CORE	BOY OR	DEMA	RKS	
ELEVATION	l	LEGEND	(Description)		RECOV-		(Drilling time, water weathering, etc.,	e lose, depth il significant)	o!
1,75.10	Ù P		CONCRETE				9		
	=	ļ	CONCRETE				Pull 1	-	
	=	1					l .	To 1.50	
		1			96.4%		1	Rec. 1.00	1
	=	1					CL 0.44	U.L. 0.0	E
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		}			ļ	0	-CD 1.10		F
	_	}				Box			-
	_	1	[50 . E
							Pull 2		F
	=	1	1		100%		From 1.50	To 2.90) ;_
	2]				1	Run 1.40	Rec 1.2.	5 [
		}	-Machine break @ 2.15.				CL 0.15	U.S. 0.0.	5 F
	_	}					-CD 2.30		F
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	_								, <u>, ,</u>
	3	1					Pull 3		2.3.0
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	_	1			}		To 7.50		-
	_	1	├ ~		99.6%		Run 4.60		F
	_	}			11.670		Rec 4.88		F
		}	Hacking breaks @ 3	2.53			CG 0.28		F
	+	1	and 4.94.)		U.L. 0.32		Ŀ
	=	1	/				Note: Scale st	9.00	E
}]	‡	\vdash		ļ		at 4.00		E
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647.1	2	1					Pull 4 (1)	<u>Catinuca</u>) F
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RILLING	LOG	Cont S	heet)	ELEVATION TOP OF HOLE	6751			Hole	No.	r-4-1	
OJECT					INSTALLATION					SHEET 2	
Clemac	n Up	per D	versi	en Dam	Hartwell	Lake	BOX OR		DEM	OF 7 SHEETS	
ELEVATION	DEPTH	LEGEND		CLASSIFICATION OF (Description	MATERIALS	RECOV- ERY	SAMPLE NO.	(Drillin weat	g time. W	ater loss, depth (, if significant)	of .
27.12	gЪ	с		d		<u> </u>	f	<u> </u>	10 +	<u> </u>	
	_		CONC	RETE (Conti hine break C	sucd) PED	j]	Full +	7.50	inued)	
	_		MAC	hine break w	0.32.	ļ		1	17.30		
İ		}	(}				Box	To Run	9.80		
İ	=	1				}	1	1	10.10		
}	-	}	}			100%	}	CG	0.30		
ļ	10	1				1,00%		le.L.	0.00		
ļ	, =	1]				10.95		0.00		
ļ		1	Mee	hanical break	@ 10.75.		1000	1			
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	12 -	}	- 1100	hine break @	12.35.		}				
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	_	7					}				
	-	1			.						
		3	- Ma	chine treak	@ 13.70.						
	14 -	3									
	-	}	-Mr	charical brea	ue 14.65.		Box				
	-	7					2				
	} =	7	-170	chine break	@ 15.47.						
	15-	}					1				
	15	}					}				
	[-	7									
	-	7						CE 17.3	0		17.33
	1 =	3					7	Pull 5	5		
	12 -]						From	17.3	0	
) ' =	1	⊢ Me	chanical brea	k @ 18.35.			To	27.4		
		_	- Ma	chine break (<u> 12.72.</u>			Run	10.1	0	
	-	Ⅎ				79.77	,]	Ree	9.		
	1	∃				11.71	•	U.L.	0. 0.		
	20-	_						۷	U.	- •	
		4						1			
		7	- 11 0	ichine break	@ 20.78.						
	-	7					1				
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	22 -	7	Me	chonical brea	K @ 22.09.		22.09	4	-		
		7					j				
		3					Box				
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.51.1	24-	╅	1 7	iontinued on S	Sheet #3.		 	·			
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RILLING	LOG	(Cont S	sheet)	LEVAIRUN I	Jr Ur MUL					Hol	e No). T	-4-1	
OJECT			_			INSTALLATIC							SHEET	3
Clema	cu li	per	<u>Viver</u> I		AIT OF			1. A K	BOX OR			REMAS		
ELEVATION	DEPTH	LEGEND]	CLASSIFICA	TION OF Description	MATERIALS		RECOV- ERY	SAMPLE NO.			me, wat	er loss, di if significa	
7/,: a	214 B	с			d			e	f			g		
			CONC	KE TE	(Canai	nard)				Tuli .	5 (Cost	inuc	i)
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	_	1							Í	-co z				27.40
			1						Box	Pull				
	28-								3	From		7.40		
	=							}	1	To		7.32		
,			1							Run		7.92 0.04		
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			Mec	horical	orca	k @ 29	1.61.	100%	1	CG U.G.		0.12		
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	=			34.27 3	57. 2 <i>?,</i> ~	- 38.43.		1		Pull				
	38 —									From		7.32		
	" =								}	To		7.32		
								100%		Run		0.00		
			1							Rec		0.10		
] =									CG		0.10		
3 <i>5.1</i>	40 -		- Men	ranica.	trest	r @ 30	27.			U.L.		0.00		
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PROJECT	100 (Sheet) ELEVATION TOP OF HOLE			Hole No. T-4-1
	an Ha	nau D	iversion Dam Hartwell	1.20		SHEET 4 OF 7 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE	BOX OR	REMARKS
625.12	ttu p	c	d	ERY	NO.	g
			CONCRETE (Continued)			Pull 7 (Continued)
•	7					
	1 ゴ		Mechanical break @ 40.97.			
	1 🗇					
	i d					
	42				Box	
]]		Mechanical break @ 42.54.		4	
			TICCHANICAL BREAK & 42.34.	100%	[
	=			100%		
	=					
	44.					
	'				[
			Mechanical break @ 44.70.	1	44.70	
			HECHANICAL DERN C 4.7.70.			
	=					
	4.1,					
	=					
	! 7					
•]	CD 47.32 47.3
	=					Part 8
	42					Fram 47.32
			- Mcchanical break @ 48.26.			To 57.40
	1 7				}	Run 10.08
					}	R-c 10.00
	=			99.9%		CF 0.02
				77.770	Box 5	u.c. 0.01
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	52.		- Hearan ar break @ 51.93.			
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	7					
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	54					-
					}	
	-		-Mechanical break @ 55.57.		55.57 8 ox	1
1317.1	56-		Continued on Sheet # 5.	+	Вох	
			Continued on Sheet # 5.			
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	LOG	(Cont	Sheet)		TOP OF HO					Ho	le N	lo.	T-4	
Clem:	11		D • · · -	r	7	INSTALLATION		LaKe					SHEET OF 7	5 SHEETS
EVATION	DEPTH	LEGEND				MATERIALS	, W E11		BOX OR SAMPLE NO.	(Dr	rilling	REMA	ARKS	, depth of ificant)
7.12	5% b	с	<u> </u>		d			e	f				g	
	=	1	CONC	RETE	(Conli	nued)				Pull	8	(Cont	tinue	: d)
	=	<u> </u>	1					99.9%	j					
		1								CD 5	. 7 7 2	,		57.4
	_		}							Pull		· · · · · · · · · · · · · · · · · · ·		
	58 —	1								Fron		57.4	0	
		‡	j							To		67.4		
	_	1								Run		10.0	0	
	_	,	- Heel	anical	break	< € 57.	.24.	100%	ļ	Rec		9.9	3	
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		}												
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	62 -	1												
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		1	111-1		1 12.00	k @ 63.	03.			1				
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	64-	1								}				
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	36-	₹	ł						ĺ					
	=	1	Mech	anical	break	@ 66.	7 <i>5</i> .		66.75					
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		}								Pull				67.40
!	22	}	1							Fron		67.40		
	_	}								To		77.30		
	_	}]	Run		9.90)	
		1						99.5 %	Box	Rec		10.09		
	=	1							7 7	CG		0.15		
	70 -	1							'	u.L.	٠.	0.05 -		
		‡	-Mcc	hanica	1 Urc	ak@ 7	0.32.							
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3.1	72-	1		. .						J —		_		
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RILLING		(Cont	Sugar!			475.1			Hole	e No.	T-4-1	
OJECT			_	_		INSTALLATION					(é
Clema	ich II	oper	Dinch	sien D			101 1.01	<u> </u>		·	OF 7 SH	EETS
LEVATION	DEPTH	LEGEND		CLASSIFICA (Description		RECOV.	NO.		lling time. w	ARKS ater loss, dep ., if significan	
3./2	72 b	<u> </u>	00110	1.27 =20	<u>d</u>		<u> </u>	f			<u>g</u>	
	_		CONC	KETE	(Conti	nued)	į	}	Piali	10 (C o	ntinuc	i)
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	74		1				22.50		Ì			
i	_						99.57	Box				
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	76 —								Note:	Scale	change	
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	7		}									
į,	77		{									
			}					77.25	CD 77.	30		77.30
I			ļ						Pull	11		
]	-		[}						From	77.30)	
	7		-						To	82.4		
[1/5 —								Run	5.18		
1			Ì					}	Rec	5.0		
1	=		1				99.67		21	0.1		
			j				1 7.57	1	U.L.	2.0		
	\exists								• • • • • • • • • • • • • • • • • • • •		_	
	. =											
1	77-		{					0				
l	=======================================		}					8 ox				
- 1												
ļ	\exists		- Meci	nanical	break	@ 79.57.						
}	-											
	30											
Ì	7		}									
					•							
į			}									
]	Ė											
į	e, 4		-Mec	hanical	break	@. 80.75.			•			
[ء '					• • • • • • • • • • • • • • • • • •						
ĺ	7		}					1				
}			Man	hine bro	ak @	81.57.	_					
]		Ŷ				From 81.5						
Ì	ᅼ	Y		d with		y have oc	22	1				
3.1	<u> تک</u>	<u> </u>				eet # 7.	-					
Ì	7		اما	HUINKED	on Jh	ε ει # /.						
	7							}				
}						C-2	7	j				
}	\exists					C Z	′					
ļ	7											
1	1		İ					:				
- 1			1									

	rog (Cont S	iheet) ELEVATION TOP OF HOLE			Hole No. T-4-1
OJECT	. !! -	- D:	Installation Accessor Day Hartwell	1 . 1/2		SHEET 7
		CK D	GLASSIFICATION OF MATERIALS	% CORE	BOX OR	
LEVATION	DEPTH	LEGEND	(Description)	RECOV- ERY	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
512	92 b	с	d	e	f	g
		X K	CONCRETE (Continued)	99.6%		Pull II (Continued)
		<u> </u>	Partial core loss continues		}	-co 82.32 82.42
		X	between pieces of concrete			Pull 12
	\exists	1	From 82.00 to 82.85. - Machine break @ 82.70.	54.6%	Box	From 82.42 To 83.40
	83 —	()		54.6%	8	Run 0.98 Rec 0.59
	13 —		Bottom of Concrete 83.05			CL 0.37 U.L. 0.49
			GRANITE GNEISS		Ì	CO 83.40 83.40
			Fine to medium grained,		1	Pall 13
			highly accatnered to Fresh,			From 83.40
}	=		Soliated with Frequent			To 88.40
	84 —		horizontal partings.			Run 5.00
			,			Rec 4.74
	\exists			İ		0.26
	-					u.G. 0.33
				i	Ì	
	85 —			!		Note: Small amount of
				100%		sand and slurry
					}	recovered on pottem
				Rad		of concrete.
				141		
	86 —			,,		
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ł			}	
! 						
				•	İ	
	=				İ	
j	=					
	87 —					
			·			
ì						-CD 87.8)
	22 —					
			Bittom of Hole 88.40			00.4
6.7			Bittom of Hole 82.40			87.40
į					1	
	_	i]	
	-					- .
į	_				1	
I	_					
					1	
	_				1	-
Į.						1
i		į .	C-58		İ	
	=					
	=	ļ				
					1	:
	=	ì		¦	1	i e

			VISION	INSTALL	ATION			SHEET	_
DRILL	ING LO	5	South Atlantic	Har	+.vel1	Lake		OF 6 SHE	LTS
PROJECT				10. SIZE	AND TYPE	OF BIT		200	
Cleme	n U	par	Diversion Poin	4		EVATION	SHOWN (TOM or ME	<u> </u>	
LOCATION		ree or Sta	- High	H C		P' 1 0 = 21	GNATION OF DRILL		
5 + 90.5 L DRILLING				1	ling 31		SHALION OF DRILL	• •	
L HOLE NO.	عزلان	trict			AL NO. OF DEN SAMPI		DISTURBED	UNDISTURBI	ED
HOLE HO.	(As shown	on draw	<u> </u>	BURI	DEN SAMPI	ES TAKE	N/A	N/A	
L NAME OF			<u> </u>	14. TOT	AL NUMBE	R CORE		8	
P. S.				15. ELE	VATION GR	OUND WA	ATER	N/A	_
EIRECTIO				IS. DATE	E HOLE	STA	RTED	COMPLETED	_
⊠ VERT I	CAL 🔲	HCLINED	DEG. FROM VERT.	<u> </u>				7 Jan 80	Ł
THICKNES	S OF OVE	2000	+CONCRETE 82.57	17. ELE	VATION TO	P OF HO	LE 67	5.0	
. DEPTH DE							Y FOR BORING	96.9	
. TOTAL DE			3. T 3		Lalder				
, TOTAL DE	PINOP	TOLE	86.50		S CORE				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA (Description)	NLS	RECOV-	SAMPLE NO.	(Drilling time, w	ARKS Mer lose, depth o	ı
67500	0 6	e	<u> </u>		•	10.		e, il elgruiicers)	
			CONCRETE]		Pull I From	0.00	
					98.6%		To 1.40	Run 1.40	
					'0.0%			CL 0.02	
	l ∃				L			U.L. 0.02	1.4
	7				1			om 1.40	_
	2 —				100%		To 2.90	Run 1.50)
	╵╵				100%		Rec 1.30	CL 0.20	ı
					<u></u>		-CD 2.70	U.L. 0.00	
	-				l		Pull 3	·	2.
			-Mechanical break @ 3	.32,			From 2.9	0	
					1	R.	1		
	4 -		Machine break @ 3.90) ,	99.7 %	Box	7.9	-	
	コ				'''' ''	'	Run 5.0		
	」 ゴ]		Rec 3.3	9	
	-				[CL 1.6		
	7					}	u.L. 0.0) (
	6 🗔				 		-CD 6.10 (8a	sed on re-	
							(iover,.)	
	⊣		L				}		
	=				[1		
			- Mechanical breaks	<u> </u>	[Ì	1		
	8		6.94 and 8.05.		[, 9
	" =		Γ				Pull 4	•	
	7				100%	j	From 7.9		
					1	}	To 15.5		
	=						Run 7.6		
	7				1	ĺ	Rce 4.9	3	
	10-				1		CL 2.0	.7	
	ן י		1		[u.G. 0.0		
] =		- Mechanical break		}	10.63	4		
	-=		@ 10.43.			ļ	- CD 11.00		
	=				1	Box			
	_					2		-	
443.0	12				├ -	 			
	=		Continued on Shect	#2.]			
] =				ł]			
			{	(-29	}				
	=								
			1		1	}	1		
			i		1	1	1		
	-	-			l .		1		

RILLING	LOG	(Cont S	heet) ELEVATION TOP OF HOL	675.0			Hole !	No. T-5	
DJECT				INSTALLATION				SHEE	7 2
	c: <u>U</u>	DOCK	Diversion Dam	Hartwel					G SHEETS
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF	MATERIALS	% CORE RECOV- ERY	BOX OR SAMPLE NO.	(Drilling weath	REMARKS time, water la tring, etc., if sig	ss, depth of mificant)
	12 b	c	d		e e	f.		g	
			CONCRETE (Cont	inuad)			Pull 4	(Contin	ued)
	_	‡			i				!
Ì		1			1	{			
	-	_			-	}	ļ		
Ì	_	7	ĺ		1		1		
	14 -	1			{	{			I
	-	‡	-Mechanical break	K @ 14.20.	İ		}		
	-	-				Box			
1		7				2			
	} _	7			}		<u></u>		15.50
	\ <u>-</u>	1					Pull 5		
	16 -	7			100%	İ	From	15.50	
]]	7				1	To	20.50	
	-	7			-		Run	5.00	
	-	_					Rec	9.42	
] =	-							
		7	- Mechanical brea	k @ 17.91.	Ì		CG	4.42	
	18 -		,	_ ,	1		U.G.	0.12	
		_							
		7							
	-	7							
						}			
	20 -	_	Mechanical	breaks @					
	20	Ⅎ	19.69 and 2			-{	-CD 20). 30	20.5
		7	1			j	Pull 6		
	_	7					From	20.50	
	1		-Mechanical br	e. K @ 2139	,	21.39	To	30.50	
		-	//echanical Dr	CAN (_ 21.5)	•		Run	10.00	
	22 -	7					ı		
	}	コ					Rec	10.02	
		₫			1007		CG	0.02	
	-				,,,,	1	u.G.	0.02	
	1	7				-	}		
		7				1			
	24 -					Box			
	ļ	-				3			
		7							
	-	コ	h						
		\exists		,	}				
	2,	-	1 //	breaks @				_	
	26 -	7	25.18, 26.	37, and 27.9	5				
		7	Γ /		}				
	-	コ							
		\exists			1				
		7				}			
647.0	28 -	1 -	<u> </u>		<u>-</u>	1	-		
J - 7. U		\exists	Continued on	Shect # 3.					
	1	7				1			
	[-	ユ							
				C-	30				
	1								
		-	1		ſ	1	!		
	i	<u> </u>	ł		1	1			
	Ī	4	1		Í				

DRILLING	roe (Cont S	heet) ELEVATION TOP OF HOL	675.0			Hole I	No. T-5-	
ROJECT				INSTALLATION				SHEET	T 3 SHEETS
Clems	:. <i>Ц</i>	per	Piversian Dam	Hartwell	Lake	BOX OR		REMARKS	
ELEVATION	DEPTH	LEGEND	-CLASSIFICATION OF		RECOV.	SAMPLE NO.	(Drilling weath	g time, water lo	is, depth of mificant)
47.02	,-b	c	d		e	f		g	
1.00			CONCRETE (Co	ntinued)			Pull 6	(Contin	ned)
į	=				}	}			
			—		1007.				
}	=		-Mechanical bi	caks @					
			28.96 and 30			Вох			
	30 —			-		3	-co 30	.30	3 <i>0.5</i> 0
							Pull 7		30.30
						}	4		
	_			_			From	30.50	
	_		Machanical				To	40.50	
	32 —		31.20, 31.9	9, and 32.67.	99.870		Run	10.00	
ĺ	_				77.8 76	32.67	Rec	10.08	
	=					35.07	CG	0.08	
		1					u.L.	0.02	
	_							.1	
	34	1	\ }		}	1			
		1							
	_	}							
		1							
1	_]							
	-	}							
	36 -	1							
	-	1				Bex			
	_	1	Mechanical	breaks @		4			
	=	-	26.68 and	37.57.		1			
		1							
	35 —	‡					İ		
	-	1				1			
		1							
	-	1	\vdash						
	-	1	Mechanical	breaks @		İ			
	40 -	1	39.28 and			1			
	-	d			-	4	- CD 40		<u> 49.5</u>
	-	1					Pull 8	40.50	
	-	3					From	50.50	
	-	3			40.0-		To		
	42 -	7			99.37	0	Rec	9.93	
	-	7					Cr.	0.07	
	-	7					u.L.	0.07	
		7					٠,٠٠٠	Q.01	
] -					43 81	İ		
631.0	July -	╡	- Mechanical bre			43.81 Box 5	7		
	'		Continued on	Sheet #4		ĺ			
ł		-				-			
Í	-	1		n 1	,				
[-	-		0-31	'				
Į		-							
Į.	1 -		!			•			
-							- 1		

KILLIIAG	LOG	(Cont :	ineet) ELEVATION TOP OF HOLE			Hole	No. T-	5-1	
ROJECT			INSTALLATION					SHEET 4	
Clems	en Us	nev D	iversion Dam Hartwell	Lake	,			OF & SHEETS	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOV-	BOX OR	(Drilln	REMAS Is lime, was	er luss, depth of	
31.02	44b	c	d	ERY	NO.	Wran	g, en.,	if significan:)	
	_		CONCRETE (Continued)			Pull 8	(Con	tinued)	
	_	1				,		•	
	_	i							
		1							
	_	1			ļ				
	46 _	j			1				
	_	}			ł				
	_	1		99.3%					
		1		1,1.5.10					
	_	}		}	Box				
	_	1	- Mcchanical break @ 47.58.		5				
j	48 -	1			, ,				
ļ	'	 		1					
	=	1							
	_		i i						
	_	1			1				
ĺ	<u> </u>	1		1					
		1							
	50	1							
	_	1			†	-CD 5		<u> 50,5</u>	1
	_				İ	Pull 9			
		1				From	50.50		
	_	1	- Mechanical break @ 51.39.			To	60.50		
	_	1				Run	10.00		
	\$2 <u></u>	1		99.5%					
	_	1				Rec	10.05		
i	_	1			}	CG	0-05		
		1				U.L.	0.05	•	
į	_			İ					
		1							
	54 -	İ							
		1		Í					
	_	1							
		-	- Mechanical break @ 55.17.		55.17				
		1	- Hechanical break & 55.17.						
		1							
	56 -	1		1	1				
	_	1							
	_	j		1					
		1			_				
į	_	1]	Box				
	_	1			6				
ļ	58 -]				-			
		1	1				· _		
		1		1					
		1	Mechanical break @ 58.85.						
	_	<u> </u>		1	j				
1	_	1			}				
.15.0	4.0 -	1		↓ _					
ں . ر ، ،	-	1	Continued on Sheet # 5.						
	_	1							
	_	1							
		1							
	-	1	C-32		1				
	_	1		1					
		1		}					
	-		•			 			
		i	1	1	í	ſ			

			ineet) ELEVATION TOP OF HOLE	1875.0				NO. T-5-1	5
PROJECT			tuanata Dani	Hartwell	Lalsa			· ·	SHEETS
Clemso	WPA	zer V	iversion Dam		% CORE	BOX OR		REMARKS	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description	MATERIALD	RECOV-	SAMPLE NO.	(Drilling	time, water loss, ring, etc., if signi	depth of ficant)
	, !		d		ERY	f NO.	3.2.7	g	, ,
615.02	600	c	CONCRETE (Cont	(1000)	99.5%		Pull 9	(Continued))
	! =		CONTRACT CONT.		1 /		CD 60.50		60.50
	=					{	Pull 10		
						1	From	60.50	
							To	70.50	
	-		į			1	Run	10.00	
	62 -	}			100 %	}	Rea	10.02	
] =	1	- Mechanical break	@ /253	700 78	Box	CG-	0.02	
	=	1	- Mechanical break	G 62.33.		6	U.G.	0.02	
	<u> </u>	{							
	=	1							
	_	<u> </u>]		}		
	64 -	{							
		1			1				
	-	1			1				
	-	1				-			
	=	1				1		.5	
	-	1							
	66 -	}				66.27			
		1	-Mechanical brea	k @ 66.27.		100.61	1		
	-	4							
		1							
	=	1							
	-	4							
	68 -	7			{	{			
	-	J					1		
	-	4							
	_	7			1		1		
	-	1	Mechanical	Lucaka A					
	-	7	68.87 and 7	-		{			
}	70 -	1	68.81 and 1	. v . c .					
1	" -	1				Box	CD 70.	5 0	70.5
]	-	7				7	Pull 1		
}									
<u> </u>	-	4				1	From	70.50	
]	1 -	7					To	80.50	
1	72 -	1					Run	10.00	
]	12 -				99.97		Rea	9.79	
1		7					CL	0.21	
}	-	_]		U.L.	0.01	
		7						·	
	-	1	LM		1		.=		
1	 	-	- Mechanical brea	K C 13.61.			1 -		
1	74-	7			ĺ	1			
	-	1			1				
	-	4							
1	-	7			-				
					1	1			
1	\ 	4		_					
= 77.0	76 -		Continued on	Sheet #6.				_	
1	-	_				1			
		7							
}	<u> </u>								
		_		C-33	3				
		7							
}	1	 	1		1)	1		

	LOG	(Cont S	heet) ELEVATION TOP OF HOLE			Hole No. T.	
ROJECT			INSTALLATION	1 12.			SHEET G
Clems	1-14	per L	elassification of materials		BOX OR	REMA	
ELEVATION	DEPTH	LEGEND	(Description)	RECOY.	SAMPLE NO.	(Drilling time, wa weathering, etc.,	ter loss, depth of
99.0 =	76 b	c	d	e.	f		
	-		CONCRETE (Continued)			Pull 11 (Cont	inued)
					Box		
] [7		
	=		-Mechanical break @ 77.44.)	77.44		
	_		- Hechanical break & 17.44.				
	78 -			99.9%			
	=)		
	=				! !		
				1			
	_)			
] =	•					
	80			<u></u>	[-CD 80.30	
	_] .		80.50
						Pull 12	T 07.00
	_		Mechanical break @ 81.17.		Box	From 80.50	
	-			90.8%	8	Run 2.50	
	82 -			10.0		CL 0.23	
	_		-0 +150 0 + +	[Note: Scale	
	_		Concrete/SC Contact.	}]	at 8	2.0 ft.
592.4		T.	Red-brown fine to medium	1			
592.2	_	> <	Corc Less 82.57 - 82.80.		ĺ	CD 82.80	
72.6			(SC) Red-brown fine to medium		}	82.80	83.
591.95	83 —		Clayer sand w/ pieces of concrete GRANITE GNEISS (83.05-84.00)	-		Pull 13	
			Greenish-gray, fine to coarse			From 83.0	20
1			grained, intensely weathered		į.	To 86.	50
	_					Run 3.	50
	_			22 // 21		Rec 1.2	
591.0	84		84.00	32.4%		CL 2.	
	=	N /	Core Loss.	RQD		u.L. 2.	
	_	\ /		o			
					(
	_	\ /					
	-	\ /					
	85 —	 \/					
	=	1 X					
		! /\					
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	=	√ \	Estron of Hole 86.50	Ì			24.50
J88. 5	-		The state of the s	 			56.50
	-	1			ļ		
	27 —	1			1		
	01 -	}			}		
] =	1					
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	-	†	0.311				
	-]	C-34		1		
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		i		!	1		
	1 -	1		1	1	1	

							Hole No.	T-6-1
DRILL	ING LO		VISION	INSTALL				SHEET
1. PROJECT			South Atlantic		AND TYPE			OF C SHEETS
	!!.		Pinanstan Dam				SHOWN (TBM a MEL	,
2. LOCATION	(Coordin	etee or St	Diversion Dam	MS	L			
4 + 95.5 3. DRILLING	AGENCY			12. MANI	JFACTURE		GNATION OF DRILL	
Savano			· t	Fai	ling 3	<u>14</u>	DISTURBED	UNDISTURBED
4. HOLE NO.	(As show	n on draw	ing title	J. BURI	AL NO. OF DEN SAMPL	ES TAKE	N/A	N/A
S NAME OF		 -	T-6-1	14. TOT	AL NUMBE	R CORE E		8
C. D. J				IS. ELE	VATION GE	OUND WA	ATER A	I/A
4. DIRECTIO				16. DAT		STA		OMPLETED
⊠ VERT I	CAL []	INCLINE	DEG. FROM VERT,				16 Jan 84:	18 Jan 84
7. THICKNES	S OF THE	HOUNDE	+ CONCRETE 81.10		VATION TO		10/3	
8. DEPTH OF	ILLED IN	ITO ROCK		<u> </u>	AL CORE P		Y FOR BORING	98.9 *
9. TOTAL DE	PTH OF	HOLE	84.00		adden			
<u> </u>		T	CI ASSISICATION OF MATERIA		% CORE	EOX/OR	REMA	RKS
ELEVATION		LEGEND	(Description)	163	RECOV-	SAMPLE NO.	(Drilling time, wet	er love, depth of , if eignificant)
675.4 a	^ ь	-	0.000.00.00.00.00		•			
	_	1	CONCRETE		}		Pull 1	F
	=	1					From 0.00	To 1.45
	_	1			76.6%		Run 1.45	Rec 1.40 [
			- Machine break @ 0.70		10.0 /8		0.03	4. L. 0. 03
	, =		ĺ		Í	İ		F
	' -							F
	=	1						F
		1			ļ		CD 1.45	
	_						Pull 2	+ 32 E
	_	}			100%		From 1.45	To 2.8
	2	}				_	Sun 1.36 CL 0.33	_
(=	1	\vdash			Box	CL 0.33	યા.લ 0.03
	_		- Machine breaks @		ļ	′	CD 2.40	
		1	/ 221 and 2.81.					
	=	1	\bigcup^{ℓ}		j			231
	, _ <u> </u>	1					Pull 3	
		1					From 2.81	To 7.45
	_	}	-Mechanical break @ 3.4	46.	100%		Run 4.64	Rec 5.08
İ		}			/50 /6		CG 0.44	u.G. 0.03
'	=	1					ļ	E
1	=	1						. 🕒
}	5 —	1					Note: Scale	
	_	1			ĺ		at 3.00) ^{7t.} F
[1					}	F
İ	-	}						F
	=	}			ļ			=
Į .	7	1	Moutanical break @ 7.	05]			<u> </u>
1	_	1	7,000.47.00	<i></i>			CD 7.45	7.45
	=	1			[Pull 4	
		1			100 %		From 7.45	F
j	_				100 78		To 17.54	_
] , =	1					(Continued)	—
00%.1	' =	1	Continued on Sheet &	- 2				— — <u>L</u>
I	=	1]		}	E
		‡	1	0 3 -])		F
		<u> </u>		C-35			1	=
	=	1					}	Ė
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l	! -	Ä	i		}	,		Ľ
1	=	t				-	1	F

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	LOG	Cont	Sheet) ELEVATION TOP OF				Hole No.	
MOJECT			8	INSTALLATION	1 1 1-			SHEET 2
Clemso	<i>مم</i> م	er <i>V</i> ix	CLASSIFICATION	Hartwell	% CORE	BOX OR	R	OF G SHEETS
ELEVATION	DEPTH	LEGEND	(Deur		RECOV- ERY	SAMPLE NO.	(Drilling time.	water loss, depth of etc., if significant)
6.42	9 b	С			e	f	•	
	=		CONCRETE (C.	ntinuca)				ontinued)
						Box	From 7.4	· 5
	-					1	To 17.5	4
Ì	7						Run 10.0	9
	_ =		-Machanical ore	ian C 10.74		10.74	Rce 10.0	19
	ᄁᅼ				j		CL 0.0	0
	=						U.G. 0.0	3
}					100%			
	_							
	7							
	13 —							
1	=							
	\exists							
	\exists		-Mechanical bri	cali @ 1451		Box		
	.₌ ∃		Troument by	- 17.37.		2		
İ	15							
	=======================================					,		
i								
	=							
}	7							
	17 —							
1	\exists	ļ					CB 17.51	
	コ						Pull 5	
}	크	ļ	-Meenanical bre	ak 6 18.19			From 17.5	4
1	\exists		201111111111111111111111111111111111111	C / 91/11			To 27.6	
	i						Run 10.11	
j	·· ¬	ĺ					Rea /0.01	
	\dashv						CL 0.03	
		ĺ]		99.5%		U.L. 0.05	5
]	=	Ì						
-	コ							
}	21-							
1	\exists		Mechanical bree	ik through				
	7		12" din. clay 1	an 11 @ 21.31.		21.88		
	\neg		Mechanical L	reaks @ 21.88.			1	
	=		22.55, and 2	23.31.		1		
	23							
			\sqcup			Box		
	\exists					3		
	<u> </u>							
	\exists							
-0.4	=							
50.4	25 —		Continued on	Sheet # 3	 			
	\exists			= acec m J.				
ļ	\exists			A		l		
	7			C-36				
1	=				1	•		

KILLING	LOG	(Cont :	iheet) ELEVATION TOP OF HOLE			Hole No.	T-6-1
OJECT			INSTALLATIO				SHEET 3
Cleme	cu 'le	per [twell Lake			OF 6 SHEETS
LEVATION	DEPTH	LEGEND	GLASSIFICATION OF MATERIALS (Description)	RECOV.	BOX OR SAMPLE NO.	(Drilling time,	MARKS water loss, depth of tc., if significant)
042	2.5b	С	d	e	f		g
	[CONCRETE (Continued)	1		Pull 5 (Co	ntinued)
	=		-Mechanical break @ 25	7. <i>55</i> .		}	
	1 -	3					
	-			99.5%	·	ĺ	
				į	ł	1	
	27 -			j	1	}	
	- ' -			Ì		}	
					j	CD 27.64	27.65
	-					Pull 6	
	-				Box	From 27.0	. 5
	=			Í	3		
	l =				}	T. 37.7	
	29		Mechanical break @ 27	22		Run 10.0	
	-		THE THE THE THE THE THE			Rec 10.0	9
	7					CL 0.0	10
						u.G. 0.1	
	-					333.	
				1/000		1	
	3!] 	100%			
	-						
	-			-	1		
				ļ		}	
	-				32.96		
	33 —		-Mechanical break @ 32	.76.	32.76	1	
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				[
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	-			•		}	
	35 —			ļ	İ		
						1	
	=		-Mechanical break @ 35.6	<i>5</i> .		}	
			7 (20				
					Box	İ	
					4		
	37 —					1	
	3/			1		1	
						CD 37.71	27.74
	-				7	P. 11 7	- 1,74
				1			Ľ.
	=						
	_ =					To 47.8	
	37 —			100%		Run 10.0	
	-		-			Rec 10.1	0
	=			1	1	CG 0.0	2
			Mand in I have A war	,]	u.G. 0.0	
	-		-ilechanical break @ 40.3	<i>'</i> ·			
	=					i	
4.4	41-		Continued on Sheet #	4			
	=		Continued on Share w	'.			
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RILLING	roe (Cont 3	neer	ELEVATION TOP OF HO	675.4				HOIC	146	<u>'</u>	-6-1	
DECT .					INSTALLATION	., .						SHEET 4	75
Cleman	· · · · lpp	er Div	اعنتاع	n Dans	Harting	1 / /	CORE	BOX OR			REMA	RKS	
EVATION	DEPTH	LEGEND		CLASSIFICATION OF	F MATERIALS m)	ÄE	CORE COV- RY	SAMPLE NO.	(Dril	ling ti stheris	me, we	ter loss, depti if significant	of)
44=	416	c		ď			e	f			8		
			CON	CRETE (Con	(Downij				Pull	7 (Con	tinued)
	_		{				ļ						
	_							Box					
	-							4					
	43 —)											
	-	1											
i	=	1	M.	chanical brea	LA WUNI	10	0%	44.01					
		}	71160	INANICAL DEC	IN & F7.01.								
]											
	45 —]											
	_	1											
		1		,	مماديي مصري								
	=	1	-Me	chanical bre	ак @ 46.28								
	47	3											
	-	1											
	-	1				-		4	CO 47				47.7
	_	‡						0	Pull		727		
	-	‡						Box 5	From		7.82 7.90		
	49 -	7							Run		0.08		
] -	7							Rec		0.03		
] -	3				0	0		CL		0.00		
	-	Ⅎ				7	9.8%		U.L.		0.02		
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	51-	7											
	-	7	7:10	chanical br	erk @ 51.4	٠٤.							
	-	3											
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	53-	╡	}			ļ							
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	55 -	#	- MA	echanical br	es 4 0 55	17.		55.17	4		-		
		7											
	-	=	}			}		Box					
		_	111	echanical bu	oik @ 56.4	3.		6					
2,3.4	57 ~		. _				_	<u> </u>	_		_		
27 D.F	1	_		continued on	Short #	5.							
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	LOG	(Cont S	heet) ELEVATION TOP OF HOLE	15.4			Hole I	No. T		
IOJECT	,	,		INSTALLATION	9 1 2.				SMEET	5
Clemes	<u> </u>	er Dis	cercian Dam	HArtwel		BOX OR		REMA	OF 6 SI	€ETS
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description		RECOV.	SAMPLE NO.	(Drilling	lime. wa	ter loss, de if significa	pib of
3.11 2	57b	С	d		e	f .		g		
}	_		COHCRETE (Cont	inuca)	20.00		Puli 8	(00	ntinu	: d)
}					99.3%		CO 57.7	0		57.90
							Pull 9	·/		ـــــــــــــــــــــــــــــــــــــ
ļ						'	From 5	7.90		
	59				}			7.95		
	"		-Mechanical bre	• ¼ = · ©				0.05		
ţ	=		52.72 and 60.		}		Rec 1	0.07		
	-7			• • •			CG	0.02		
)	\exists						u.s.	0.02		
	61				[Box				
	51	;			}	6				
	7				{					
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}	=		\bigcap							
	دع —	'	Mechanical break	ks @						
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1	65	· .	}) !					
	=======================================									
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1	, = =		G6.25 and G6.74							
	67 -		and conty	•						
	4									
1						,	CD 67.95			67.95
j	7						Pull 10	7.0-		
	, =					30x	From C	.7.95 18.10		
	1.9 -					7		0.15		
1	7					•		0.06		
}			-Mechanical break	@ 69.25.	99.1%		CL	0.09		
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02.4	73 -		Continued on Sh		+					
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1	4			C-39	} {					
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DRILLING	rog (Cont 3	neer		675.	4			HOLE	No. T		
PROJECT			 · -		INSTAL						SHEET	-
Clemso	n Hae	er Div	errien D	1m		Hartwell					OF G SH	EETS
ELEVATION	DEPTH	LEGEND	1	SSIFICATION (Descr	ipsion)	IALS	% CORE RECOV- ERY	BOX OR SAMPLE NO.	(Drill wea	REMA ling time. wa thering, etc.,	ster loss, dep	ab of
632.42	73b	c					•	f			3	
	_		CONCRET						Pull	10 (Co	ntinued)
i	=		- Mcchau	nical b	reak @	73.5 <i>0</i> .						
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	75 —						99.1%	7				
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[_	ł						Į	CD 78.			<u>. 7£</u>
	_	1							Pull 1			
<u> </u>	_								From	78.10		
]	79 —]	1 .]	To	81.40		
	_	1						1	Run	3.30		
	_	1	}					[Rec	3.02	2	
		i					94.4%	1	CL	0.28		
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1	_	$1 \times$	31.1	0 t. 81	.12	oer from			-CD 8/.	30		21
	<u> </u>			Loss		21.12	1	1	Pull 1			
ł	_		1 \	81.30			4		I .	81.40		
	-	1	COANTE	<u> </u>	from 8	1.30-21.40.	4	1	1			
	22 -	1	GRANIT	calt.	0€000:= \22	coloved,			To	84.00		
	-	1	slightly	fal: at	معامهام	به علامه	1	1	Run	2.60		
] -	1	minera	1 conti	int.	GUFN	95.3%	1	Rec	2.05		
ł		7		= • •	. •				CL	0.55		
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	LOG	(Cont	Sheet) ELEVATION TOP OF HOL	675.0			Hole	No.	T-7-1
KOJECT				INSTALLATION					SHEET Z
Clemso	<u>n 1/48</u>	er Div	version Dam	Hartwell	Lake	1			OF 5 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF		% CORE RECOV- ERY	BOX OR SAMPLE NO.	(Drill	REMAI	RKS er loss, depth of if significant)
3.02	طح ا	c	d		e	f.		8	ij iig~iji.u)
	_		CONCRETE 100	atimuedi			Pull 6	4 (Cont.	nuca)
	_								recovery to
									based upon
	_						cut de	oths. To	tal U.L. to
	_		Mechanical brea	aks @ 12.60,			end o	f Pull 4	= 0.23. Total
	14 -		$\int /3.59$, and 15.5				COYE .	recovery - = 97.7 3	to end of
	_		1 /		}	}	ruii T	//./ /	· · · · · · · · · · · · · · · · · · ·
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	_		Γ			Box	Pul!		
	16 -					2	From	15.22	•
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			Mechanical break	C 27.08.	1				
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47.0	28 —	ļ		· · · · · ·	 				
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	LOG	(Cont :	heet) [[Hole	No.	T-7-1	
KOJECT		0.		0		INSTALLA		1 1.				*	3
Clemso	الهام حا	eer Di	ersien	CLASSIFICAT			rtwell		BOX OR		REMA	OF 5 SH	2613
ELEVATION	DEPTH	LEGEND	•		Description		L3	RECOV.	SAMPLE NO.	(Drill wea	ing time, w	ater luss, dep , if significan	th of
7.02	28 p	c			_ d			e	f			3	
	_		146	METE	(crn	€ 1 ₃₀₋₁ 0 €	4.7			Field 1	6 11 cm	Chuco)
	-		_										
			\Box					į					
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į	=			echanica			28.70,			-25 29	20		30.00
į	30 —		/ ~	9.15, av	.d 30.	74.				Pull			~ <u>~~</u>
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	_								вох 3	Te	41.3		
	_		ļ [96.7%	3	Run	10.2		
	_							16.170		Rec	7.7		
}	32 —									C L	0.4		
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	<u> </u>		- Mech	anical	hreat	k @ 3	8.39.		Box				
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	\exists								1	From	4.0.20	,	
										To	47.7		
İ	\exists							1100		Run	9.7		
	42) } 	1echani	cal br	eaks (€ 41.03	100%	! 	Rec			
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	roe	(Cont S	Sheet) ELEVATION TOP OF HOLE				Hole No		
KOJECT				INSTALLATION	1 1-			SHEET	SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF		% CORE	BOX OR		REMARKS me. water los	s, depth of
1.0 =	14b	c	_ d		ERY	NO.	weatherin	g, etc., if ug	мірсан: j
	_		CONCRETE (Co.	Tinued)			Pull 8 (Contin	ued)
	=		_Mechanical brea	V. @ 4419	1		·		
			and 46.03.	RS C TT.II		Box 4			
	=					*			
			/			46.03			
	46		-			76.03			
	=								
					}				
	=								
	48 —								
	=					}			
							-CD 49.80	••	49.70
	50 —						Pull 9		
							i	19.90	
					ļ	Box	T_{\bullet}	59.60	
	_				100%	5	Run	9 .70	
					700 78		Rec	9.90	
	52						CG	0.20	
					}	} ,	u.G.	6.10	
			- Mechanical break C	52.39					
	=		THEENENICAL BREAK C	J J. J /.	1				
	54 —								
	=								
	=] !			
	56				j	,			
	=		_						
			-Mechanical bre	aks @ 56.48		}			
			and 57.16.		Ì	57.16	Note: Bege	n to exi	t con-
	3	A	Machine breaks	A 57.74		1	crete @		
	58 —	1	58.29, 58.84,		1		_		
		1	1 //			Box			
	=	1.1	Flat surface of			6			
		[.•]	coated w/ 1/8"		1	1	11		
		+1	from 57.06 to	BOH. Dark	<u> </u>	4	CD 57.60 Pull 10		57.60
5.0	60		Continued on	ned si <u>lty (cont</u>			ruii 10		
			Loncinose on -	11 CC 17 5]			
				<u> </u>) !			
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ELEVATION)	LEGEND			CATION (Desci	OF MA				BOX OR SAMPLE NO.	(Drille	REMA ng time, wa hering, etc.,	RKS iter luss. de	psh of
613.02	1.0b	c~				1			e	f		g	<u> </u>	
		<u>}</u>	CONC	RETE	AN	0 51	LTY	SANO Cont.)			Pull.	_	Conti	
		11 t A	Sand	recau	ered	with	con	crete.	69.6%	_	1	59.60	Tr 6.	2.20
		1111/	M T	ach i ne				+61.02	000	DOX	Run		Rec	
	\exists		Core							6	16	0.86	U.L.	0.76
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612.8	62		ECTT	<u>~</u>	<u>CE_1</u>	1676		62.21			- 20 61	ــــــــــــــــــــــــــــــــــــــ		62
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PROJECT			South Atlanti	·		AND TYPE		p n:			345613	\forall
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LOCATION	(Coordinate	e or Sta	tion)		MSI							4
5 + 22 DRILLING	AGENCY				1 _			GNATION C	F DRILL			1
SAMANA	ch Dist	trict			13. TOT	L NO. OF DEN SAMPL	OVER-	DISTUR	DED	UNDIS	TURBED	7
A. HOLE NO.	(As shown a	on drawn	T-7	2	BURE	EN SAMPL	ES TARE	EN A	/A	۵ـــــــــــــــــــــــــــــــــــــ	//A	4
S. NAME OF	DRILLER			<u> </u>		NUMBE			8	· 		4
<u>r. v</u>	-1:==	<u> 2 I</u>	<u>estis:</u>		15. E: EV	ATION GR		RTED		A	F D	4
6. DIRECTIO	N OF HOLE CAL □IN		DE	. FROM YERT.	IE. DATE	E HOLE	:	9 Dec				
					17. ELEV	ATION TO			675.			
			+ CONCRETE	83.90	18. TOT	AL CORE R	ECOVER	Y FOR 80F			98.2	3
S. DEPTH DE				5.40		ATURE OF			, 0		_	
9. TOTAL DE	PTH OF H	OLE .		89.70		& CORE		Mark	REMA	BY 5		┨
ELEVATION	DEPTH	EGEND		ON OF MATERIA cription	ALS	RECOV-	SAMPLE NO.	(Drilling	time, matering, etc.,		depth of (icens)	-
1.75 n ·	0 6		0.00 - 0.40 Co	<u>d</u>		•		ļ				+
ı	‡	$\geq \leq$	0.40 - 0.60 Un	cemented .	aggre-			Pull 1 From	0.00	To	2.60	F
I			gate and 1/2"-	11/2" pieces	e F			Run	2.60	-		F
			0.60-1.59 Goo		e.	45.8%	Box	CF	1.41	U.L.	1.41	F
			Machine brea 1.59-2.83 Cor				'					F
		\ /	1.31 - 2.03 Cor	E 1055.				ł				F
		X						CD 2.66)		_ 2.63	, F
	7	\triangle	Food concrete	1	03		}	Pull 2				F
			rood concrete	below	J J .		}	From		-3	4.20	F
	1 7		\vdash			35.6%		Run	1.60	Rez U.i.		F
	4							CC 4.2	0. 23 20	۷.۵.	0.23 4.3:	្រ
			1 /	oreaks E	3.46		1	Pull 3				F
			and 5.06	•		ļ		From	1.20			F
								To	9.30			F
	=		Mechanical &	reak @ 5.4	÷6.			Rus	5.10 5.11			F
						120 00	ļ	25				E
						1		u.G.	0.01			E
			Machine ores	V 6 1 05		!		1				F
}	=		Len ne ope	Cr. C. 3.73.)	,					E
	=						}					-
Ì	7											Ł
	$\mid \exists$											ŧ
ļ							İ					ŀ
							4	<u>↑⊅ 9.3</u>	0		23	2_{
	\exists						}	Pull 4	0 20			ŀ
	, , —						ļ	From	9.30 19.30			ŀ
						100 %	1	Run	10.00			ŀ
							}	Rec	9.91			
								26	0.09			ł
	=====================================			- 5 H 6	2			u.G.	0.01			ł
443.0			Continues	on Encir #	: : z —	+	-					}
i					-							}
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	, =		ļ			j	j		-			ţ
1			ļ			ŀ	1	i				ſ

	LOG	(Cont_S	Sheet) ELEVATION TOP OF HOLE		_	Hole		-7-2	-
OJECT			INSTALLATION				Si	SHEET 2	
Clemer	· lles	ser Di	exsien Dam Hartwell	Lake	c			OF 6 SHEETS	<u>, </u>
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% CORE RECOV- ERY	BOX OR	(Drillin	REMARK ng time, water hering, etc., if	r loss, depth o	of
3.0 a) , b	c	d	ERY	NO. f		g		
	,	ſ	CONCRETE (Continued)		 	Pull 4	(Contin	nued)	
ļ		1			Box		• • •	14.5.	
		1		1	/3.08	1			
ļ		f			2 22 27 24	1			
	.]	4				1			
į	14	ı	Mechanical breaks @		1	1			
Ì	, ' [']	1	13.08 + 14.45.						
	<u> </u>	1	r	100 070		1			
		1	1	100 %		1			
		i	1			1			
1	,	ţ	<u>'</u>						
İ	16-	1	L .						
1	. 7	1	Mechanical breaks @	1	Box	1			
1		1	16.02 - 16.86		8 o x				
1		1	10.02 4 16.00.						
1	, –	į.		1					
1	. =	1				-			
-	12 -	1		}		1			
1		1							
	,	4							
1	. =	1			_	-CO 19.2	2.0		9.30
1		†				Pull 5			444
į		4				From	19.30		
!	20	1	}			To	17.30 29.10		
	. =	1	-Mechanical break @ 20.64		1	Run	29.70 9 .80		
į		1	Trechanical Dienn C			1			
		4	1	100%	,	Rec	7.31		
1		4	1		İ	CL	2.49		
į	22-	1		1	Ì	u.G.	0.01		
į	, ~ ~ _	1							
1	. 7	4							
i		t							
	,	1	\vdash		j				
		4	Mechanical breaks @ 23.28,						
İ	34-	1	23.93, + 24.61.						
	. =	1			1				
İ	; <u> </u>	1	 - '		24.61	4			
		4	i						
1	. =	1		1					
	i	1							
1	26-	1		İ	Box		^		
	1 =	1			3	-co 26.	50		
	-	4					,-		
	1 -	4							
!		1							
+7.0	22-			j					
+1.0			Continued on Sheet #3	†	†				,
:		4			ļ				
}		4			Í				
	· _	4	0-47		1	•			
:		4	1	!	i	1			
:	·	i		1	i	İ			
		<u>.</u>				:			
		1	İ			i			

KILLING	LOG	Cont S	iheet) ELEVATION TOP OF HOLE			Hole No.	T-7-2
OJECT			INSTALLATION	, , , , .			SHEET 3
Clemse	n // pp	Per Div	orsion Dam Hartivell	1-a Ke	BOY OF	964	AARKS
LEVATION	DEPTH	LEGEND	_CLASSIFICATION OF MATERIALS (Description)	RECOV-	SAMPLE NO.	(Drilling time,	water loss, depth of c., if significant)
67.0ª	ag b	С	d d		f	12 11 5° (1)	g
			CONCRETE (Continued) Mechanical break @ 28.18.	Ì		Pull 5 (C	onlinuedj
			- Mechanical Break & 20.10.				
	_			1			29.10
	_					Pull 6	
				99.170	[!	From 29.1	0
	30 —					To 34.1	0
i			_		Box 3	Run 5.0	
			Mechanical break @ 30.62.)	Rec 5.3	
						CG 0.3	
	_					U.L. 0.0	
	_						1 (Based on
	32						recovery.)
	=						
				}	!		
					}		
	34 —					0 11 7	34.10
	_					Pull 7	
	_				35.0 <i>5</i>	From 34.1	
			Mechanical break @ 35.05.		33.05	To 40.5	
						Run 6.4	
	=			1222		Rec 8.4	
	36 —			100%		CG 2.0	
				Ì	}	u.L. 0.0	10
	_				,		
ļ							
!	_						
l I	3.0	[
ļ	38 —				1		
	_		_			!	
l J	_		Machanical break @ 38.73.		Вох		
}					4		
	_	1		1			
Ì	40	1					
i	70 -					1	
	_	1			1	-CD 40.40	49.50
1						Pull 8	•
:		1				From 40.5	
	=	1				To 50.5	
	42 -	1		1100%		Run . 10.0	
		1	Mochanical break @ 42.13.			Rec 70.1	
į	_	1				CG 0./	
		4				U.L. 0.0	10
	-	1	:				
	_	1	[
31.0	44	-		- -	-		
- ,	_	4	Continued on Sheet #4	1			
	i -	1	1				
		1	1		-		
		1	C-4.	8	1		
	_	· •					
		4 •	1	1	1		
					1	1	

RILLING	LOG (Cont S	heet) ELEVATION TOP OF HOU	67 <i>5.0</i>			Hole I	No	-7-2	
OJECT				INSTALLATION				S	HEET 4	
Clemso	en Up	per D	iversion Dom	Hartwell	Lake				# G SHEETS	_
ELEVATION	DEPTH	LEGEND	- CLASSIFICATION OF		% CORE RECOV- ERY	BOX OR SAMPLE NO.			(S r loss, depth of significant)	Ì
1.02	44b	c	d		e	f				_
			CONCRETE (Cont	inued)			Pull 8	(Conti	nucd)	
ĺ	_					Box				
						4				
	-				}					
	=		-Mechanical break	C 45.26.		45.86				
	46									
	=				100%					
] _									
	_									
	48									
	=	ł								
	=	}	K			1				
	-	}	Mechanical or			Box				
	=	{	48.80, 49.26,	ano 47.76.		5				
	50 -									
	=	1				1	CD 50.50		50.50	2_
	=	!			İ		Pull 9			
	-						From	50.50		
	=	1					To	60.50		
	52 —	‡					Run	10.00		
	=	}					Rec	8.71		
	=	1	-Mechanical ores.	× @ £2.74.			CL U.G.	1.29		
		}			100%		۸.٥.	0.07		
	_	<u> </u>								
		1								
	54 —	}								
	_]					Ϊ			
	_	1								
	=	1								
	=	1	> Mechanical br			1				
	56 -	1	55.18 and 56.	.40.		56.40				
		1			į		1			
		1								
		1								
	=	1			i	Вох	.	- <u>-</u> .		
	58-	‡				6		•		
		‡					1			
								• •		
		‡					CD 59.	40		
] =	1								
15.0	60 -		Continued on SI	eet # 5		 				
	-	1					•			
	_	1				-				
	-	-		C-4'	9					
		7			1					
	-	-			1	!	1			
	1	1				1				

	LOG	(Cont S	heet) ELEVATION		75.0			Hole	No.	T-7-	2
ROJECT	- -			INS	TALLATION					SHEET	<u>ت</u>
Clemsq	r Upp	Per Di	version Dan		Hartwell	Lake	257 08		2544	OF 6	SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFI	CATION OF MAT (Description)	TERIALS	RECOV- ERY	BOX OR SAMPLE NO.		REM. ing time, withering, etc.		
15.02	CLP	С	CONCRE	d re (Cont:		e -	f	Pull 9	(0 +	8	<u></u>
ļ	_		Mechani	cal break	e 60.09.			rull 1	Cont	inuea	60.50
	=							Pull 10)		
						l i		From	60.50)	
	_							To	69.20)	
į	_							Run	8.70		
	62 —		,					Rec	10.10		
ļ	_							CG	1.40		
:	_					100%					
								U.G.	0.10		
							Box				
	64		-Mechanical	Min a	- segrega-		6				
	- 40		break @	1	of ma-						
}			63.86.	1	Is Clack	}					
			/		avse						
			/		cja(c)						
	_		/		63.40	}					
}	66 -										
				T 0 (66.00.						
1						1					
}			-)					
	_		> Mecha	inical brea	r: @						
[_		66.91	67.66, an	a 68.06.	!	67.66				
	78 —		`								
		ļ					,				
	_							CD 69.2	.0		69.20
	_							Pull 1			
	_							From	69.20	•	
	70 —					}		T.	79.30		
Ì	_)		Run	10.10		
	_					100%		Rec	10.11		
							B ox	CG	0.01		
	_		- Mechanical	break @	71.28.		7	u.G.	0.01		
j								u .o.	0.01		
	72 —										
1	_		}			}					
	_										
	=										
	74								,		
ļ	, , , _								-		
	_										
			- Mechanica	I break o	75 01						
			.,	Urcar C	13.01.						
	_	ĺ									
79.0	76 —										
			Continue	ed on She	et #6						
	=	1									
ļ			}								
	_				C-50						
	_										
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	rog	Cont S	heet)	ION TOP OF HOL				Hole I	۷o	T-7-7	2
PROJECT					INSTALLATION					SHEET	6
_Clems	21 - Maj	eer Di	version		Hartwel		BOX OR		REMA	OF G	SHEETS
ELEVATION	DEPTH	LEGEND	GLAS	SIFICATION OF Description		RECOV-	SAMPLE	(Drilling	time. wa	iter loss, d if signific	epib of
599.Cª	746	c		ď		ERY	NO.	W 44177	ring, eic., g		44. /
			CONCRE	TE (Con	tinuedi			Pull 11	(Co	ntinu	ed)
ľ	=					ł					
1											
	⇒					100%	80×				
}	=						7				
	78 —					ĺ					
İ	7										
Ì	7		Mechani	cal break	@ 78.80	}	72.80				
	7	ļ ·	.,		— 7 1.60.	}		CD 79.30			79.30
]								Pull 12			
į	80 -	; 						From	79.30		
[**					1		l			
į								To	83.90		
į								Run	4.60		
ļ	\vdash	ı .				98.9%		Rec	4.55		
}	-	,					D	CL	0.05		1
	82 —					ĺ	B.x	U.L.	0.05	5	i
ļ	\exists		- Mechani	eal break	@ 82.47	}	8				
-			. (300 (12)	• • • • • • • • • • • • • • • • • • • •							
į											
Ì	\exists										
	<i>□</i> ∃		Bottom c	f Canevale	83.90			CD 83.90			83 90
	84-				ine to media .	100%		Pull 13			8443)
1	⇉		616	to 8	from 83.70 4.10.	ر ف		Run	.50 F		ر ۱ الدين الدين الم
			(GRANITE	E GNEISS					34.4		
					red, fine to			Pull 14			
	\exists		coarse	grained,	micaceous,	[From	84.40	2	
	86				is horizontal			To	89.70		,
ł	コ				Fracture fre-						
}	\exists		quency;).				Run	5.3		:
								Rec	5.3		
ļ	7						!	CL	0.0		
	_ =							U.L.	0.0	0	
	23-	į				}					
}	=					İ					
1											
}											
85.3	\exists		Pottoin .	# Hole	89.70			CD 29.70			89.70
03.3	90							د ٠ .	_		
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	\exists										
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	\exists				C-51						
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							Hole Ne.	T-10-1
DRILL	ING LO	G DI	VISION	INSTALL				SHEET
L	ING EG		South Atlantic		t well			OF 7 SHEETS
1. PROJECT		-	•		AND TYPE		R Diamond	
2. LOCATION	Comp	oer D	iversion Dam	₹		EVALION	1 2HOMH (184 @ #3L)	
4+73		or 3(1	*.	MS 12 MANI	LEACTHE	R'S DESI	GNATION OF DRILL	
3. ORILLING	AGENCY			1	lina 3		GRATION OF BRICE	}
Savann	ah Di	strici	t	13. TOT	AL NO. OF DEN SAMPL	OVER-	DISTURBED	UNDISTURBED
4. HOLE NO.	(Ae show	00 drawi	- :	BURG	DEN SAMPL	ES TAKE	N/A	N/A
S. NAME OF			T-10-1	14. TOT	AL NUMBE	R CORE		g
C. D.				18. ELEV	ATION GR	OUND WA		
6. DIRECTIO				1		STA		MPLETED
⊠ VERTI	CAL D	NCLINED	DEG. FROM VERT.	16. DATI	E HOLE	2	5 Jan 84	26 Jan 54
				17. ELE	ATION 1	P OF HO	LE 675	2
			+ CONCRETE S1.3'	18. TOT	AL CORE R	ECOVER	Y FOR BORING	98.4 =
S. DEPTH DR	ILLED IN	TO ROCK			ATURE OF			
9. TOTAL DE	PTH OF	HOLE	25.5	1	a h Lous			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA	LS	% CORE RECOV- ERY	BOX OR	REMAI	
i i			(Description)			NO.	(Drilling time, water water)	if eignificant)
675.2.0	0 6	<u> </u>	CONCRETE		•		9 11 1	
			EDNCKE / E				Pull 1	Ţ
]]		From 0.00	t
]							To 1.50	F
	7		-Machine break @ 0.7	2	97.3%		Run 1.50	ļ
			FILACHINE OFER CO. 1	<i>o</i> .			Rec 1.46	t
1	<i>1</i> —						CL 0.04	ļ.
							U.L. 0.04	ļ.
						Вох		
	_					1	CD 1.50 Pull 2	1.50
	_					·	From 1.50	To 2.45
1	=				1000	ļ	1	
}	2 —				100%			
i i	_		}				CG 0.03	u.g. 0.03
						ļ	CD 2.45	2.4.5
[Pull 3	
1] =						From 2.45	ŀ
1							To 7.52	Ī
1	3 —						Fun 5.07	Ì
ļ							Rec 5.05	t
] :							CL 0.02	}
}			Mechanical break @ 3.	(2	00.0	ļ	u.G. 0.08	ļ
1			The character of Early 3.	⊌ €.	99.6%	1		ţ
] .	u				ļ	}	N.+a. Sala	.1
1						ļ	Note: Scale	
	7		}]	ļ	@ 4.00	<i>F</i> (.
								ł
						}		F
}						[1	ļ
	اد ــا					[-	ł
1] =		Machine break @ 6.24	•])	}
]] =				·			•
}			İ			ļ		<u> </u>
	=		1				LCD 7.42	7.52
i					100%	! !	Pall 4 10	
<u> </u>	8		J 7		<u> </u>		(C	ont: nucd)
			Continued on Sheet a	≠ Z.		(Í	t
]	_	- 			ļ	}	j	F
				-				ţ
}				C -52	1		}	ŀ
	4				[F
[i		1		1	F
		<u> </u>				ļ		į
Ī			I		ĺ	1	(ł

ILLING	LOG	Cont S	iheet) ELEVATION TOP OF HOLE				Hole	No. T-	10-1
DJECT				INSTALLATION				1	HEET Z
Cleinse	n Upp	per Di	icusion Dam		ell Lak	BOX OR		REMARK	7 SHEETS
EVATION	DEPTH	LEGEND	-CLASSIFICATION OF (Description		RECOV- ERY	SAMPLE NO.	(Drillin weath	REMARK g time, water ering, etc., if	loss, depth of
7.2 a	8 p	С	d		e	f	72 11 11	<u>8</u>	
	_		CONCRETE (Conti	nued)			From	(Cont. 7.52	inuedj
								7.52 17.52	
						Box		0.00	
]	_				}	,	•	0.11	
	10 —	!			İ	,		0.11	
	70 —						U.G.	0.03	
	_		-Mechanical break	(@ 11 12	į	11.12			
			- Hechanical Drown	9 11.12	100%				
1	12 -								
	_								
]									
-									
1	14								
1									
ļ									
ļ			-Mechanical break	(@ 14.88.					
1						Box			
	-					2			
	16								
1	Ī								
]				
									_
							CO 17.50		17.52
	18 -						Pull 5		
}	' =		M = 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 10 111			From		
į			-Mechanical break	C 18.44.				27.60	
							Run	10.08	
						,	Rec	9.99	
1					100 %		CL	0.09	
ĺ	20-						u.L.	0.00	
1	_								
	_								
}	_								
ĺ	_								
ļ	22		- Mechanical oreak	@ 22 U		22.14	, ,		
ļ	=		TIECHANICAL BYEAK	G 66.14.		- MALT			
	_	1				ĺ			
	\	}				Box			
	_					3			
						1			
1. 2	24	 	Continued on Sh	ect # 3					
				ice ii J.					
ļ	=								
ļ		1							
ļ	=			c	-53]			
ł									
ļ	_					}			
j) _	1	I			,	1		

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DRILLING	LOG	Cont :	Sheet)	ELEVATION TOP OF HOL	7 <i>5</i> . 2			Hoi	e No.		
PROJECT					INSTALLATION					SHEET 3	
Clems	en Up	per l	liver		Hartwel		BOX OR		0FM	OF 7 SHEE	.15
ELEVATION	DEPTH	LEGEND		GLASSIFICATION OF (Description		RECOV.	SAMPLE NO.	(Dri	Umg time, u	vaser loss, depil ., if significant	of
651.2ª	24b	с		d		e	f			g	
	- =		CONC	CRETE (Cont	inued)		į	Pull.	5 (Con	tinued)	
											F
						}					<u> </u>
	_					100%					E
	26 -		Mec	hanical break	K @ 25.92.						上
											E
	_]				_
											<u> </u>
	_						8 o x	-CD 2		······································	27.60
,	28							Pull			E
						{	1	From			E
	_						1	To	3 7. 3 <i>0</i>		E
			[Run	9.70		<u> </u>
			_Man	hanical break	(@ 29.64	100%		Rec	9.80		⊢
	30 -						1	U.L.	0.10		F
							1		0.00		F
						1		[[E
	-		Mac	hine break G	⊇ <i>31.13</i> .		1				
	=										F
	32 —						}				Ë
			Ì			}	1	! ! !			F
	=					j	1				F
			, m		4 0 22 24		33,39				
	_		Tilec	hanical break	c @ 33.31.						F
	34										F
											F
	_										
						-					
	_										F
ĺ	36						_				F
ļ						1	Box				F
							4				F
							1	_CD_3			37.30
	_						1	Pull			F
	38							From			F
	_					98.3%		Run	47.37 10.07		F
	_	1						Rec	9.90		F
	_	1	M	hine break	@ 3 <i>9 5 2</i>			CL	0.17		E
	_		Filac	NINE DEERK '	- 11.36.]		u.G.	0.03		
43 <i>5</i> .2	40 —		Car	stinued on She	et # 4	-}					—— [E
	=	,			·· ··						E
		,									E
	-	↓ •	1		C-54						E
	=	1			2 - /						E
-		1						1			E
	_	1									ļ
	_	1	I			1	1 -	4		-	1

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,

DRILLING	LOG	(Cont	Sheet)	ELEVATION TOP	of Hou	2			Hole	No.	T-10	-/	
PROJECT		•			INST.	ALLATION					SHEE	1 4	
Clemsa	on U	per	Diver	ion Dan		Hartwell	Lake	BOX OR		R	EMARKS	7 SHEETS	
ELEVATION	DEPTH	LEGEND		_CLASSIFICATIO	ON OF MATI escription)	ERIALS	RECOV-	SAMPLE NO.	(Dril we	line time	, water los etc., if sig	is, depth of nificant)	•
635.24	406	c			d		e	f	Pull	7 (g	nued)	
	-	╡	CON	RETE	(Continu	red)	[run	, , , ,		n KE 07	
	-	7											
		3			1								
	-	\exists		lechanical		ھ		Box					
	42-	‡		1.06 200	, 5. 0,.			4					
] :	‡											
	_	3				_	98.3%						
	-	1	-Mai	chine bre	ak @ 4.	3.33.							
	44_	╡											
	-	‡	7	lechanica	1 break	(s @		44.62					
]	=	<i></i> ,	4.21, 44.0									
	{ :	∃			·		}		}				
		=											
	46 -	7							[
		3											
]	_	_					}	1	-CD 4			4	7.3.7
		7						Box	Pull		27		
	48 -	3				0.4000		5	From	57.			
			Frice	chanical	break	C 48.30.			Run		83		
1	_	_					ļ		Rec	10.			
		7					100%	>	CG		28 11		
1	50 -]							u.G.	0.	' '		
		\exists	- Me	chanical	break	@ 50.27.		}					
		7											
	-	\exists											
		\exists											
	52 -	\exists	Fr.	chanical	break	@ 52.10.							
		7											
	-	\exists											
1		\exists											
-	54 -	7								` - -			
		\exists											
	_	\exists											
		\dashv											
		7	110	chanical	break	<u>@ 5</u> 5.88 <u>.</u>		55.88	4				
117.2	56 -	_	- -	ontinued	on She	et #5.						_	
		\exists											
	-	ゴ				~ ~ ~							
		7	}			C-55							
	-												
1	1	\exists	[1	1	}				

	LOG	(Cont S	iheet)	ELEVATION TOP OF HOL	75.2			Hold	No. T-10-1	
KOJECT					INSTALLATION				SHEET	5
Clains	en Up	per D	ivers	ion Dar.	Hartw			,	OF 7 SH	EETS.
ELEVATION	DEPTH	LEGEND		-CLASSIFICATION OF		% CORE RECOV- ERY	BOX OR SAMPLE NO.		REMARKS ling time, water loss, de othering, etc., if significa	
19.22	56b	с	}	d		e	f	}	g	
	_	<u>_</u>	CON	CRETE (Con	tinued)			Pull 8	(Continued)	
	_		ĺ			100%	Ì	ţ		
							ļ	١		
	_		İ				ĺ	CD 5		<u>57.2</u>
	_						ļ	Pull		
	58-		!					From	57.20	
	ے ، ۔		}				ļ	To	67.30	
	_							Run	10.10	
			}				}	Rec	10.10	
	-		1					CL	0.00	
	_		-Mec	hanical brea	K € 59.43.	}	}	í		
	60 -		[U.L.	0.10	
	_		1			99.0%				
	_		1				0			
							Box	1		
	=						6			
	_		-Mec	chanical brea	k C 61.67.		ĺ			
	62-					1		}		
			1							
	_		į			į	ļ			
					14 5 /2 30	!	i			
			- Me	chanical bre-	<i>x</i> ∈ 63.20.		ĺ	1		
	-		i ;			i r	1			
	64 -			. ,	0 (2.33			! !		
] =			Machine brea		1	ļ	j		
	=		⊢ ∕ '	64.48, and 6	4.77.	!				
	<u> </u>		ĺ				į	Ì		
	_					İ		i I		
	=					Ì	1	1		
	66-		700	chine break	ख ८६.५५.	į				
	-						İ	-		
	=		L Me	chanical bro	Car CO 161. 77	,	66.87			
			,		· · · · · · · · · · · · · · · · · · ·	•	ĺ	CD 67	.3 <i>0</i>	47.30
	_		}				1	Pull		
	68-							From		
	-		1				Ì	To	77.37	
	_		}			22.70		Run	10.07	
			1			99.7%	1	ł		
	-		- Ma	chine break	@ 69.25.		Box	Rec	8.92	
	=		""				7	CL	1.15	
	70-	1						U.L.	, 0.03	
	" =									
	-		Frec	honical bro	au@ 70.60	. j		1		
	_	ł						į		
	=	}						}		
	_	1								
J3.2	72 —		-	ntinued on S						
	=	}	L 0	ntinued on 1	irect 开G.					
	=	1					1	1		
		<u> </u>					i			
] =	1			C-56		-			
	=	1			(-)	'	}	[
		1						1		
	-	{					1	1		
	ı –	1	1			1	1	1		

RILLING	rog	(Cont S	iheet) ELEVATION TOP OF HOLE			Hole No. 7-10-1
HOJECT			INSTALLATION			SHEET C
Clein.	son U	pper	Piversian Dam Hartwel			OF 7 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOV- ERY	BOX OR SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
13,7ª	72b	С	CONCRETE (Continued)	e	f	Pull 10 (Continuea)
			CONCRETE (Concinued)	-		Concinded)
i		1				
	-					
	=		-Mechanical break @ 13.27.	99.790		
	74-		- Hechanical Orent - 75.60.		Box	
	=				7	
		İ				
		}				
	=	1				
	76 -					
	-	ĺ			1	-CD 76.25
	-	}				
					77.27	
] =]	-Mechanical break 3 77.2%		14.6	Pull 11
		1				
	78 -	j				From 77.37
		1			1	To 82.83
	=	}	- Machine break @ 78.45.			Run <i>5.4</i> 3
		1	70.75.	85.3%		Rec 5.05
] =			03.3 /6		CL 0.32
	79					U.L. 0.87
	'' =	1		ļ]	
	_	}				Note: Scale change
						at 78.00 ft.
	_	1				
	<u> </u>				Box	
	80 -		1 1 0 000		8	
	-	1	- Machine break @ 20.15.			
	=			ļ		
	!	1				
	=	1				
	81 -	1	- Machine break @ 80.98.	}	}	
	" =	1				
393.9	-	 	Bottom of Concrete E1.30 CORE LOSS			Note: Approx. Ift. red
	-	1\ /	81.30 to 82.17	!		drop @ 81.30.
	=	\mathbf{I}				G10p = 07.51.
] _ =	i /\		1		• .
	85 -	! / \				20 23 17
575.0	-		CC, Red-crown fine - med. claye,	1	1	-CD 82.17
:77.85			GRANITE GNEISS			
	-	1	Fresh, light quay salt and- proper colored, slightly		I	i
	=	1	Schated.			27.20
572.3	23 -	1	1	-		Pull 12 (Continuca)
	=	1	Continued on Sheet # 7.			
] =	<u> </u>				
	-	}		1	[
] =	1				
	=	1	C- 57			
		}				
	-	-				
	1 -	1			ļ	1

RILLING	LOG	Cont S	heet)	N TOP OF HOLE	75.2			Hole No.	
DJECT			<u></u>		INSTALLATION	11 1 14	· -		SHEET 7
Claus	on U	pper	Diversion	Don-	Hartive	% CORE	BOX OR	REM	ARKS
LEVATION	DEPTH	LEGEND	ELASS	FICATION OF (Description		RECOV- ERY	SAMPLE NO.	(Drilling time, u weathering, etc	vater loss, depth of if significant)
222	836	c		d		e	<u>f</u>	12 11 12 16	sutinuer/
-			GRANITE	GNEISS	(Continued)	1		Pull 12 (Ca From 82.2	
	=		Fresh,	epper c	ay salt-	}	}	T. 85.5	
	_	1	and po	y foliat	ed.	¥95.6%		Run 2.7	
	_	1	Slightl	y 50174.C	C 4.	RQD		Rec 2.5	8
		1				89	8 ° ×	CL 0.1	2
	84 -	1)	0	Tape 82.8	2
	=	1						*Note: 70 co	re recover/
		‡						for Puil !	2 based on
	-	‡						run lengt	r. Material
	_ =	1						under pri	ed apparent up in note
	85 -	‡						during	ithdrawal of
	=	4				į	}	core barr	
ε 9. 7		 	Bottom	of Hole	<u>85.50</u>		+	 	
•] =	‡							
	-	‡					-		
		1					1		
		‡							
	-	7							
		‡							
		7					İ		
	-	╡							
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		3							
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l		コ					ļ		
1		#			_		Í		
					C- 4	3			
1	1		,						

PRODUCTION PANELS

CQC Boring Logs

							Hole No.	
. DBH	ING LO	• '	VISION	INSTALL				SHEET
	ING LUC	<u> </u>	South Atlantic		lartwe			OF 2 SHEET
PROJECT Clemsor	ים פע נ	r Di	version Dam		AND TYPE		HQ Diamond	
LOCATION	(Coordina	tee or Sta	tion)	MS				
STA. 14	F62			→ ·		R'S DESIG	NATION OF DRILL	
		id Rc	bertson		E 55	OVES	IDISTURGED	UNDISTURBED
HOLE NO.	(As shern			13. TOTA	DEN SAMPL	ES TAKE		
NAME OF			3	14 TOT	AL HUMBE	R CORE B	oxes 3	···········
				IS ELE	VATION GR	OUND WA		(24hrs.)
Tommy !	OF HOL	<u>. L e </u>				STA		OMPLETED
X VERTIC	:AL	4CFINED	DEG. FROM VERT		VATION TO		-15-84	6-15-84
. THICKNES	S OF OVE	RBURDE	ν	ļ				
. DEPTH OR	ILLED IN	то	Concrete 26.1		AL CORE P		Y FOR BORING	93
. TOTAL DE	PTH OF H		29.3	_			(Engineer)	
			61 4601616151611 AB WATER		% CORE	BOX OR	REMA	
ELEVATION			(Description)	- · · 	ERY	SAMPLE NO.	(Drilling time, wei	ter loss, depth of , if significant)
75.•3	0 6	<u> </u>	4	1	-	,		
İ	コ		Angular machine books 0-0.1'	reak			Pull l	to 4 3
}	=		Concrete			Вох	Run 4.3	
			Concrete		98	1	Rec 4.2	
-	ㅋ				1		C.L. 0.1	
Ì	2 =						Time 10:1	9-10:28
- 1	' ¬]		Note: 100	% return
1	\exists				}	}	drill wat	er-gray
							color	
	\neg				İ			
	コ				}			
71.0	4				!		Tape de	oth 4.2'
	\exists				 	i i	Pull 2	
ł	_]	From 4.3	to 9.3
							Run 5.0	
	コ		Machine break 5.5	T	ł		Rec 5.1	
j	$\downarrow \exists$] _		C.L. 0.0	
	6 —				102		Time 10:3	2-10:39
	\exists							
ļ	コ				}			
	\exists							
	\exists				i			
ļ	8				ļ			
	=							
	<u> </u>				 		Tana da	pth 9.3'
66.0	7					 	Pull 3	pen_7.J
l							From 9.3	to 14.3
İ	10-						Run 5.0	
	彐				1	, ,	Rec 5.0	
	コ					10.8	C.L. 0.0	
!	\dashv]	Box	Time 10:4	3-10:52
	Ⅎ				100	BOX	-	
	12		Machine break 12.	1'	100			
	**		- nachine break 12.	-				
	⇉							
		i						
						. 1		
	\exists			C-60				
				C-60				
561.3	14			C -60 				

RILLING	rcg (Cont S	heet) ELEVATION TOP OF HOLE	5.3			Hole No.	3	
Clems	on Up	per D	iversion Dam	INSTALLATION Hartwell	l Lal	ke		SHEET Z OF 2 SHEETS	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF		RECOV-	BOX OR	(Drilling time,	MARKS water loss, depth of	
6143	146	c	d	•	ERY	NO.	weathering, et	c., if ugnificant)	
661.0		·	Concrete (Cont	inued)				Continued	
								epth 14.3	<u>'</u>
	-						Pull 4	3 to 19.3	
	=				•	Box	Run 5.0	5 60 19.5	
						2	Rec 4.8		
	16	ļ			96		C.L. 0.2		
] =						Time 10:		
•]						enged fro	
	=							ischarge	
	=						at depth	charge bi	C
	18	-	_ Machine break	18.1'		[[ас черси	17.5	
] =								
] =				[1 1		anth 10 1	,
656.0							Pull 5	epth 19.1	
	7							3 to 24.3	
	20 —		Machine break	20.2'		i 1	Run 5.0	-	
	7						Rec 5.1		
	=				102		C.L. 0.0		
	=						Time 11:	19-11:35	
			. Machine break	21.6'		21 6'			
	22	}							
		·							
			_ Machine break	22.8'		Box			
1	▎ ᅼ	}				3 3			
	=		_ Machine break	23.6'					
:	24	Ī				<u> </u>			
651.0		1						epth 24.2	r
]						Pull 6	3 to 29.3	
							From 24. Run 5.0	J LO 29.3	
;		1		05 01			Rec 3.1		
	36 7		_ Machine break _ Bottom of cond		78		C.L. 1.9		
	26	ľ	Clay bentonite				Time 11:		
	7		contact mater:					crease RP	
	-	-	- 26.9'					drill wa	t e
	7			_			color ch	ange at om gray t	O
	٦, ٦	ļ	Highly weather					own, then	
	28 —		RQD=0% very poquality	or rock				from lig	
			quartry				brown to	gray	
							Tape d	epth 28.5	t
646.0	▏ ੜ					29.3'			_
	⋰⊐		Bottom of hole	29.3'	ĺ	[15-84 wat	
	30-			ļ	j		level af	ter drill	in
ĺ	Ⅎ			İ			20.0		
j				_ ,					
	\exists			C-61				ater leve	
	\exists	1		İ				fter dril	1
				·	1	ł	ing 20.5'		
		- 1							ļ

•

		I DI	VISION	INSTALL	ATION			SHEET	٦		
DRILL	LING LO	~ I	outh Atlantic	Hai	rtwell	Lake	2	OF 4 SHEETS	.		
1. PROJECT							HQ Diamond		٦		
Clemso	n Upp	er Di	version Dam	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)							
2. LOCATION	(Coordine	etee or St	Mien)	MSL							
STA. 3				12. MANUFACTURER'S DESIGNATION OF DRILL							
			bertson	CME 55							
4. HOLE NO.	(Ae shom			13. TOTAL NO. OF OVER- DISTURBED UNDISTURBED							
end file nu			9								
S. NAME OF				14. TOTAL NUMBER CORE BOXES 6							
Tommy	Burne	<u>tte</u>		-			- 0,00.0	(24hrs.)			
1			DEG. FROM VERT.	16. DAT	EHOLE	}		6-18-84	- 1		
[A] VER !!!	- L	NC LINEC	DEG. PROM VERT.	17 FLF	VATION TO			0-10-04	1		
7. THICKNES	S OF OVE	RBURDE	н				Y FOR BORING	00	∄		
8. DEPTH OF	RILLED IN	TO ROCI	Corcrete 55.2		ATURE OF			98 '	7		
9. TOTAL DE	EPTH OF	HOLE	59.2	1			(Engineer)				
			CLASSIFICATION OF MATERIA		_	BOX OR		RKS	7		
ELEVATION	DEPTH	LEGEND	(Description)		RECOV-	SAMPLE NO.	(Drilling time, wet	er loss, depth of	1		
674.07	0 b	<u> </u>	d		•				—		
}			Loose aggregate zo	ne	1]	Pull 1	, -	上		
İ			0.0'-1.0'			[_	From 0.0	to 4.2	F		
			L		100	Box	Run 4.2		上		
	-		Concrete		ł	1	Rec 4.2				
	=						C.L. 0.0		F		
	2	!	1				Time 1:17		匚		
			Machine break 2.2'			1	Note: 100				
	=					1	drill wate	er-gray	F		
	_		Poorly eemented ag	gre-			color		上		
			gate zone (0-3/4"								
	=		3.0'-7.8'	/							
(70 5	4] 3.0 -7.3				Tana da	n+b / 2!			
670.5	{ ` →					}	Pull 2	pth 4.2'			
	=						From 4.2	* 0 2			
						1	Run 5.0	CO 9.2			
	-		Machine break 5.3'				Rec 5.0		-		
	=						C.L. 0.0		F		
	6 —				100	}	Time 1:30	1 . 4 1			
					100	İ	11me 1:50	-1:41	\vdash		
	=					1			F		
						i	1		上		
	-					1			<u> </u>		
									F		
	8		Γ			1			上		
									F		
	7		Poorly cemented ag	0 F A					厂		
			gate zone (0-3/8"	deen)			Tana da	pth 9.2'	上		
665.5			8.7'-10.7'	aeeh)		†	Pull 3	pen 7.4			
	=		0.7 -10.7				From 9.2	to 1/ 2	二		
	10		.				Run 5.0	20 14.2	上		
	`` _		Machine break 10.2	·]	Rec 4.9		\vdash		
	7		<u>L</u>		98	10.9			F		
					, , ,	1.0.9	Time 1:46	_1 - 5 5			
	=					Box	11me 1.40		\vdash		
	7	!		ĺ		2	1		F		
	12	,	Poorly cemented ag	gra_		-					
			gate zone (0-3/4"			Í			F		
	\vdash \exists		12.5'-16.3'	P/					F		
			-Machine break 13.0	,					E		
	_								F		
}		·		C-62					F		
660.7	1/ =					_			上		
		-				·			\vdash		

	roe	(Cont S	heet) ELEVATION TOP OF HOLE 674.7			Hole No.9
Clemso	מתון מי	er Di	version Dam Hartwell	Lake	.	SHEET 2
	-	er br	CLASSIFICATION OF MATERIALS	% CORE	BOX OR	REMARKS
ELEVATION	DEPTH	LEGEND	(Description)	RECOV-	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if ugnificant)
	14ь	c	d	e	f	8
60.5	=	·	Poorly cemented aggre-			Pull 3 (Continued) Tape depth 14.1'
	=		gate zone (0-3/4" deep)		Box	Pull 4
	-		12.5'-16.3'	1	2	From 14.2 to 19.2
	=	İ	Machine break 15.7'			Run 5.0
	16					Rec 5.1
		}	! 	102		C.L. 0.0
	=	1			ļ	Time 2:02-2:14
	_	1				
	=	1				
	.	!	Machine break 17.8'			
	18 -	1				
] =	1		}		
55.5		1				Tape depth 19.2'
	=	1			†	Pull 5
	=	1				From 19.2 to 24.2
	20 —	1				Run 5.0
<u>.</u> .	=	}			1	Rec 4.9
	=	7		98		C.L. 0.1 Time 2:22-2:34
	_	 	Machine break 21.2'	1	21.2	Time 2:22-2:34
	=	1		-	Ì	
	22 -	1			ł	
	=	1				
	=	1				
	=	1			ļ	
	=	1			ļ	
50.5	24 -				į	Tape depth 24.1'
	=	1		 -	1	Pull 6
	=	<u> </u>	Washing basels 2/ 01]		From 24.2 to 29.2
			-Machine break 24.9'			Run 5.0
	=				i	Rec 5.2
	i -	Ì				C.L. 0.0
	26 -]		104	ĺ	Time 2:42-2:52
	=	}		1.04		
	-		Machine break 26.9'			
	=]			1	
	=	}		;		
	28 -]			ļ	
	=]		İ		
45.5		1				Tape depth 29.2'
	=	1				ru11 7
	=	1				From 29.2 to 34.2
	30 -	1		1	! !	Run 5.0
	=	1				Rec 4.9 C.L. 0.1
	_=	1	0.1-	98	{	Time 9:30-9:43
	=	•	C-63		31.4	
	=				Box	
42.7	32	-		1	_4	
	1 =	ł	Continued on sheet #3	1		

DRILLING	LOG	(Cont	Sheet) ELEVATI	674	. 7			Hole No. 9
PROJECT					INSTALLATION			SHEET 3
Clemso	n Up	er D	iversion	Dam	Hartwel			OF 4 SHEETS
ELEVATION	DEFTH	LEGEND	CLAS	SIFICATION OF		% CORE	SAMPLE	REMARKS (Drilling time, water four depth of
64247	3 2ь	c		d d	,	ERY	NO.	weathering, etc., if significant)
04247	<u> </u>	1 .	 	- (C		 ` -	-	Pull 7 (Continue
	-	-	Concre	te (Con	cinued)	ļ		Pull / (Conclude
	=	7				į.		
			Machin	e break	33.3'		D	
	=	1					Box 4	
640.5	34	1					•	Tane denth 34
040.5	-	‡					† †	Pull 8
	-	₫					1	From 34.2 to 39.
	_	1						Run 5.0
	-	7						Rec 5.1
	26	7				102		C.L. 0.0
	36 —		L Machin	e break	36 31			Time 9:49-10:00
	-	1	Machin	e break	JU.J			
	_	1						
	-]					1	
	_	7				1		
	38 —	- 	↓ Machin	e break	38.0'			
	-	‡						
	-	₫						
35.5		1					l L	Tape depth 39
	_	1					j ſ	Pull 9
	40 —	-						From 39.2 to 44
	40 —	7						Run 5.0 Rec 4.9
	-	1				98		Rec 4.9 C.L. 0.1
	_	1				70		Time 10:06-10:2
	-	1						
	_	∄]	
	42 —	1					42.3	
	-	7				1	76.3	
	-	7					Вох	
)	_	7				1	5	
	=	1						
530.5	44 —	1						Tape depth 44
ر.ں.ر	77 -	1					∮	Pull 10
	_	1						From 44.2 to 49
	_	7						Run 5.0
	=	7						Rec 5.1
		+	Machin	e break	45.8'			C.L. 0.0
	46 -	1				102		Time 10:26-10:4
		1						
ļ	_	1						
		-				İ		
	_	7	Wash I-	e break	47 01			
	48 —	1	- macnin	e oreak	41.0			•
	_	1						
ł	_	i						
625.5		1	!		2-64	1		Tape deutl. 49.
- 1	-	1					l Ï	Pull II
	_]	,			1 1		From 49.2 to 54.
524.7	50 	1					1	

DRILLING	LOG	(Cont S	heet) ELEVATION TOP OF HOLE 674.7			Hole No. 9
ec.cc			INSTALLATION			SHEET 4
Clemso	on Upp	er Di	version Dam Hartwe			OF 4 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)		SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
2447	5 Ob	c	d	e	f	
	! =	·	Machine break 50.1'	1	Box	Pull 11 (Continued)
	_		Concrete (Continued)	,	5	Run 5.0
			concrete (continued)			Rec 4.9 C.L. 0.1
	=			98		Time 11:03-11:24
	=					Note: changed from
	52 —		Machine break 52.3'	i		bottom discharge bi
	_			}	50 01	at depth 49.2',
	_		Machine break 52.8'		52.8	water color change
	-]	from gray to tan at
	=		_Machine break 53.6'			depth 54.0'
	54					_ , , , , , , , , , , ,
520.5	_	<u> </u>			† _{Bar}	Tape depth 54.1' Pull 12
	=		Machine break 54.8'		Box 6	From 54.2 to 59.2
	-	1	Bottom of concrete 55.2	•	"	Run 5.0
	_	1	Clay bentonite-sand			Rec 4.1
			contact material 55.2'-	82	i i	C.L. 0.9
	56		56.7'			Time 11:31-11:46
**	=	Ì	Slightly weathered			Note: water color
	=] -	gniess 56.7'-59.2']	change from tan to
			RQD=92%, excellent rock			gray at depth 57.0'
	_	!	quality			Cored material
	58 -					stuck in barrel uspe
	_	1]	water hose to flush
	=					material out of barrel
515.5					59.2	Tape depth 59.2'
,,,,	=		Bottom of hole 59.2	1	33.2	Tape depth 37.2
	=		200000000000000000000000000000000000000]]	
	60 —					Note: 6-18-84 water
	-			ļ		level after drilling
	=		· ·			13.5'
	-				}	
	1 =				1	
]	
	=			•	}	
] =					6-19-84 water level
						24hrs. after dril-
	=]]	ling 18.2'
	-			}]	
	-					
	=]	
					!	
] =					
	=					
			0-65			
	! =		(· - 6)			
] =					
	-7		•			
	7					
	ı — →	i		1	1	

					Hele Ne. 26A						
00.10.1.1.1	~ . ~	a 1 - '	VISION	INSTAL	ATION			SHEET			
PROJECT	6 LO	S	outh Atlantic		rtwell			OF 6 SHEETS			
	**	- D4	war dan Dan				HQ Diamond				
LOCATION (C	Upp	er Di	version Dam	MS		EVATION	3110411 (1.D.M. Q. M.D.	_,			
TA. 8+9	90					R'S DESIG	NATION OF DRILL	· · · · · · · · · · · · · · · · · · ·			
RILLING AG	ENCY	nd Po	bertson		E 55						
HOLE NO. (Ad				13. TOT	AL NO. OF DEN SAMPI	CVER- ES TAKE	DISTURBED	UNDISTURBED			
			2 6A								
NAME OF DRI					AL NUMBE						
DIRECTION O	rne	tte_					639.5	(24 hrs.)			
T VERTICAL		_	DEG. FROM		E HOLE		•	6-7-84			
				17. ELE	VATION TO		E 675.0'	<u> </u>			
THICKNESS O				18. TOT			FOR BORING	99 9			
			Concrete 83.5		ATURE OF		- · · ·				
TOTAL DEPT	HOF	HOLE 8	9.2	Nan	cy Rec	tor (Engineer)				
LEVATION D	<u>СРТН</u>	LECENS	CLASSIFICATION OF M/ (Description)	TERIALS	RECOV-	BOX OR	(Drilling time, we	ARKS Iter loee, depth _. of			
5.00 0	_b	c	d		ERY	NO.	weathering, etc.	, if significand			
			Concrete			Вох	Pull 1				
	\exists		Clay bentonite	seam		1	From 0.0	to 4.2			
			0.5'-0.7'				Run 4.2				
	\exists				95		Rec 4.0				
	\exists]	C.L. 0.2 Time 9:40	0.54			
2					İ		Note: 100				
							drill wat				
	\exists					}	color	cr sra,			
	コ										
0.8 4						}	Tana da	pth 4.21			
0.0	╛				 	}	Puli 2	pr. 4.2			
	\exists		Machine break 4	.8 *			From 4.2	to 9 ?			
							Run 5.0	20 7.2			
}	7						Rec 5.0				
	_						C.L. 0.0				
6					100	ļ	Time II:I	8-11:26			
}						[
						i					
						[
	\exists					}					
8					}	}					
	111										
	\exists										
65.8						j i		pth 9.2'			
							Pull 3				
					100		From 9.2	to 14.2			
10	7				100		Run 5.0				
	_	j					Rec 5.0 C.L. 0.0				
			Occasional aggr			11.1	Time 11:2	9-11-37			
	\exists		voids (0"-3/8"	deep)			ERMEC EFF	,/			
	Ξ		11.0'-12.8'		1	Box					
1 2	2 —					2					
					1						
			_		}]					
				C-66							
					1						
61.0 14											
	_					[
(_	[Continued on st	ieet #2	1						

RILLING	LOG	Cont S	heet) ELEVATION TOP OF HOLE	75.0			Hole No.	26A
IOXCT				INSTALLATION		- le c		SHEET 2
lemson	Uppe	r Div	version Dam		well La	BOX OR	REA	ARKS
EVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description		RECOV-	SAMPLE NO.	(Drilling time. s	vater loss, depth of ., if significant)
661.0	1 4b	с	dd			<u> </u>		8
660.8	16		Concrete (Con		100	2 2	Tape d	continued) epth 14.2 2 to 19.2 42-11:51
55.8	18				100		Pull 5 From 19. Run 5.0 Rec 5.0 C.L. 0.0	epth 19.2° 2 to 24.2
)	22		Machine break	c 23.1'		Box 3	Note: 35 downtime	56-12:00 35-12:43 minute for lunch
650.8	26—		Machine brea	k 27.3'	96		Pull 6 From 24 Run 5.0 Rec 4.8	.2 to 29.2
645.8	28 -			C -4	- 100		Pull 7 From 29 Run 5.0 Rec 5.0	0
643.0	32	7	Continued on	sheet #	3		Time 2:	10-2:20

DRILLING LOG (Cont Sheet) ELEVATION TOP OF HOLE 675.0 Hole No. 26A										
NOJECT			INSTALLATION		_	SHEET 3				
Cle	nson	Upper	Diversion Dam Hartw	ell La		OF 6 SHEETS				
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)				
43.0	3 8	С	d	•	f	8				
			Concrete (Continued)		32.3	Pull 7 (Continued)				
	7		Machine break 32.3'		1 1					
			machine break 32.3			ţ				
						<u> </u>				
	7				i	·				
40.8	34			})	Tana danta 2/ 01				
40.0	-				Box	Tape depth 34.0' Pull 8				
					4	From 34.2 to 39.2				
						Run 5.0				
						Rec 5,:1				
	36—			100		C.L. 0.0				
	70-			102	[[Time 2:26-2:36				
						l L				
	7					F				
						ļ t				
	-		_ Machine break 37.7'			ł				
	<u>, , </u>		_ nachine bleak 3/./							
	38				1 1	ļ <u>l</u>				
ļ	\dashv			}		-				
	1.1					ļ.				
35.8						Tape depth 39.1'				
	7				7	Pull 9				
						From 39.2 to 44.2				
'	40—	Į] !	Run 5.0				
				102		Rec 5.1				
	_]	c.r. o.o				
					1	Time 2:42-2:57				
	_			{	1	F				
	42					, t				
			Marking bossel (2 5)	1		· · · · · · · · · · · · · · · · · · ·				
			_ Machine break 42.5'			Į.				
[Ì	43.1'	t				
	\exists					: F				
					1	t t				
30.8	44				Вох					
٥٠٥٠		Ì			5 5 S	Tape depth 44.2'				
					'	Pull 10				
	7					From 44.2 to 49.2				
						Run 5.0				
						Rec 4.9				
	, , , =					C.L. 0.1				
}	46			98		Time 9:22-9:44				
]	-					Note: 5 minute down				
	_				'	time to refill water				
						tank				
				1	1 1					
						 				
	48-		Machine break 48.2'							
	48-		_ Machine break 48.2'							
	48-		_ Machine break 48.2'							
25.8	48-		Machine break 48.2'	3		Tane death 49 1				
25.8	48-			3		Tape depth 49.l Puli 11				

DRILLING	LOG	Cont S	heet) ELEVATION TOP OF HOLE 675.0			Hole No. 2	
MOJECT		_	INSTALLATION	vell Lal	K E		SHEET 4
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)		BOX OR SAMPLE NO.	REMA (Drilling time, wi weathering, etc.,	ser loss, depth of
525a0	5 Ob	c	d	ę.,	f		s
			Concrete (Continued)		Box 5	Pull 11 (C From 49.2 Run 5.0 Rec 5.0	ontinued) to 54.2
	52		Machine break 51.8'	100		C.L. 0.0 Time 9:51-	10:03
620.8	54 —		_ Machine break 54.3'		54.2	Tape der	oth 54.1'
				102	Box 6	From 54.2 Run 5.0 Rec 5.1 C.L. 0.0 Time 10:1	
	56		_ Machine break 56.6'				
615.8	58						pth 59.2'
019.0	60			100		Pull 13 From 59.2 Run 5.0 Rec 5.0 C.L. 0.0 Time 10:3	
	62		Machine break 62.3'				
610.8	64-		Segregated aggregate 63.3'-63.8'			Tape de	pth 64.2'
	66-	1111111		96	64.9 Box 7	From 64.2 Run 5.0	
	_	1111	Machine break 67.7'	(-6	7		
607.0	68_	+	Continued on sheet #	5			

DRILLING LOG (Cont Sheet) ELEVATION TOP OF HOLE 675.0 Hole No. 26A										1
#DJECT				INSTALLATION		1		1	5 6 SHEETS	1
Clemson	n Uppe	er Div	ersion Dam	Hartwe.	ll La	ke sox or	9	EMARKS	O aussia	4
EVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description		RECOV- ERY	SAMPLE NO.	(Drilling time weathering.	. water los	is, depth of mificant)	
074.0	68 b	c	d		<u> </u>	ſ		<u>g</u>		+
			Concrete (Con	tinued)		Вох	Pull 14	(Cont	inued)	
						7 7	Tape d	anth	69 0:1	F
505.8	-						Pull 15	<u> </u>		7
							From 69.	2 to	74.2	ļ
	70-						Run 5.0			Ì
					104		Rec 5.2			Ł
	_						C.L. 0.0			-
					1	1	Time 11:	27-11	l:46	ļ
	=									ţ
]_ =									ł
	72 —					j				F
] =	ł								Ì
	=	i								t
	-	1								1
	=	1								ļ
	74 —	1			1		T	0=+4	74 21	
600.8	1/4-	}				4	Tape of Pull 16	eptil		-
		1					From 74.	2 + 2	79 2	ĺ
		1				1	Run 5.0			-
	_	1				75.6'	٠			1
	=	7				73.5	C.L. 0.3	2		
	75-	1					Time 11		2:41	
	1 ' =	1			96	Вох	Note: 35			а
	-	-			90	8 8	in dril			
		7					lunch			
	-	1	1			1	1			- 1
	-	1								
	78 -	7								
	-	1			{					
		∄								
595.8	_	1				_		lepth	79.C'	
	1 -	4					Pull 17	_	2.4	
	-	7			1	1	From 79	.2 to	84.2	
	80 -	4					Run 5.0			
	-	_	Machine break	80 81			Rec 4.9	1		
	-		Tacuine preak	. 00.0	98		C.L. O. Time 1:		2 /	
	-	7			1					
		⇉	Concrete pane	el-earth			Note: C			. +
	82 _	1 /	dike interfac	ce (0-1½"	1		facedis depth 7		e off g	Ĺ
	102 -	7	deep)81.6'-8	3.5'		1	deptn /	7.4		
	1 -	7 /	Machine break	k 82.1'						
		1 /	Machine break	k 83.2'			!			
		++	Bottom of cor		5					
		- <i>-</i> -	Highly weath							
500 0	84 _		83.5'-89.2'		-		Tane	denth	84.0'	
590.8		_	Very poor roo	ck quality	1	-	Pull 18	<u></u>		_
		7	RQD=0%		1		From 84	2 to	89.2	
	i -	7	1 1140 019	2-70	96		Run 5.0		- / • -	
		<u> </u>			96		Rec 4.8			
	Ì	7			į	h	C.L. 0.	2		
589.0	86_	7	Continued on	sheet #6	1	po.∪				

	LOG	Cont S	iheet) ELEVATION TOP OF HOLE 67.5	. 0			Hole No. 26A
NOJECT				INSTALLATION		1.	SHEET 6
CISHE	on Upp	er D	version Dam	Hartw		sox Or	OF 6 SHEETS REMARKS
EVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description		RECOV.	SAMPLE	(Drilling time, water loss depth of
589 3 0	8 <i>8</i> a	c	d		ERY	NO.	weathering, etc., if significant)
	-		<u> </u>		 	 - 	<u> </u>
			Highly weather	red gneiss	}	Вох	Pull 18 (Continued)
				5	1	9	Time 1:34-1:41
	\exists						Note: 100% return
	−	İ]		drill water-green
	۱., I	į			1		color. Material in
	88						inner barrel too
	_						tight to remove by
	╛	j					gravity-washed out
85.8		Ì				89.2	
	\dashv		Bottom of hole	86 21			barrel
	コ	j	Boccom of Hore	2 0 9 . 2	,		Tape depth 89.0'
	90 —						
	コ						N-+ (7 0/
į	コ	1					Note: 6-7-84 water
1						[[level after drillin
	コ				}		25.4'
	\exists]					6 9 9/
	\neg	}			}		6-8-84 water level
	=	{					24hrs. after drill-
	_	ļ					ing 35.5'
	\dashv						,
Ì	コ	1					
	=						
		Ì					
1	7	į				}	
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1						1	

		T 2	VISION	INSTALL	ATION		· · · · · · · · · · · · · · · · · · ·	SHEET .	_
DRILL	ING LO	e 100	South Atlantic	1	rtwell	Lake	!	OF 4 SHEET	۱,
. PROJECT			SOUCH ACTARCIC		AND TYPE				\dashv
Clemso	n Upn	er Di	version Dam				SHOWN (TBM or MSL.		\neg
		etee or Sta	version Dam	MS					
STA. 8						R'S DESIG	SNATION OF DRILL		\neg
Froeh!			bertson		E 55		1000000	•	\dashv
L HOLE NO.	(As show	n on drawt	ng title	13. TOT	al no. Of Den Sampi	OVER- LES TAKE	N	UNDISTURBED	'
and file ma			2.6	10 70-	AL NUMBE	P. COST -	OVES		\dashv
NAME OF							<u> </u>		\dashv
Tommy				13. ELE			Not mea	SUTABLE	-
			DEG. FROM VERT.	16. DAT	E HOLE	•		5-5-84	ı
<u> </u>			DES. PROM VERT.	17 FI F	VATION TO			<u> </u>	7
THICKNES	S OF OVE	RBURDE	N						
. DEPTH DR	RILLED IN	TO 806H	Concrete 58.6		AL CORE P		Y FOR BORING	10	띡
TOTAL DE			58.6	1			<u>(Engineer</u>	-)	1
					2 CORE		REMA		-1
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA (Description)		RECOV-	SAMPLE HO.	(Drilling time, wat	er loss, depth of	
74.45	0 6	٤	4		-	10.	9	diffullicates	\perp
			Loose aggregate 0-	0.3'	1	1	Pull 1		F
	=		Poorly cemented agg		}	1	From 0.0 t	: 0 3.6	ļ
			gate 0.3-9.6'		92		Run 3.6		t
	_				1 92	P ===	Rec 3.3		F
	_		Angular machine bro	aab	Ì	Box 1	C.L. 0.3		ļ
	2		1.8'-2.1'	-42	1	1	Time 1:51-	-2:06	Ŀ
					j		Note: 4 mi	inute dow	n Ғ
	=						time to ch	neck wate	r [
		1			l	1	tank		t
	_	1			}	i			H
0.9	=		Machine break 3.8'			{	Tape der	th 3.6'	[
	4	1	Lindenine break 3.0			[Pull 2		
	_	1	 Concrete		1		From 3.6 t	0 8.6	ŀ
	=	}	COUCTECE		1)	Run 5.0		F
		1					Rec 5.1		t
	-	•				<u> </u>	C.L. 0.0		H
	=	1			102		Time 9:19-	9:25	F
	6	1]	[t
	-	1			[F
•	[=	1			1	<u> </u>			ļ
		1				[t
	_	•	Machine break 7.5']				F
	=	}	machine oreak 7.3		[ĺ			Ī
	8	1							t
. .	=	<u> </u>			1]			F
5.9] =	1			<u> </u>		Tape der	th 8.6'	- -f
		1			1]	Pull 3	. 12 -	t
	-	t			1		From 8.6 t	:0 13.6	}
	=	1	-		1]	Run 5.0		F
	10 -	1			[Rec 4.9		t
	=	i			1		C.L. 0.1	0 / 0	ŀ
	=	┥			98	10.9	Time 9:33-	9:40	F
		1			'	1 5 5			ļ
	=	1			[Box			H
	_	1				2			F
	12	}			1	-			Ė
	=	1							F
	=	1		(70	[(li I		F
		1	1	C-72	1				È
50.9	1 =	1			ļ]			F
	=	1			<u> </u>	l l		th 13.5'	- F
50.5	14 -	}					Pul1 4		丰
.	=	•			l				F
	! -	1	Continued on sheet	# 2	l				

RILLING	LOG	(Cont S	heet)	ION TOP OF HOLE	74.5			Hole No. 26
ROJECT					INSTALLATION			SHEET 2
Clemso	on Upp	er D	lversion			ell La		OF 4 SHEETS
ELEVATION	DEPTH	LEGEND	CLAS	SIFICATION OF	MATERIALS ,	% CORE	SAMPLE	REMARKS (Drilling time, water loss, depth of
_	j	[(Description	' جع ر '	ERY	NO.	weathering, etc., if significant)
560 <u>⊾ 5</u>	14b	С		d		<u> </u>	ſ	g
	=	•	Concre	ete (Cor	itinued)	,		Pull 4 (Continued)
	=					j	Box	From 13.6 to 18.6
					į	·	2	Run 5.0
					i			4Rec 5.2
	-					104		% C.L. 0.0
	16		i			104		Time 9:48-9:56
								Note: 100% return
	-							drill water-gray
								color.
							İ	
						ĺ		
	18 —							
	10 -					İ		•
555.9						<u></u>		Tape depth 18.7'
			i		1			Pull 5
	-				•			From 18.6 to 23.6
						1	[Run 5.0
	ت ۸ د ا							Rec 4.9
	20							C.L. 0.1
								Time 10:02-10:26
						98		Note: 10 minute
		ļ					ļ	downtime to refill
								water tank
	\ <u>_</u>						22.0	
1	22							
ĺ		Ì						
ļ		}					Вох	
50.9						j	3	Tape depth 23.5'
ļ	١	1						Pull 6
	24							From 23.6 to 28.6
	E							Run 5.0
								Rec 5.1
								C.L. 0.0
İ	\pm	ł				102	1	Time 10:31-10:42
							İ	
	26	1						
	\vdash	1						
	7	ļ	Machin	ne break	27.0'			
	\neg		_				1	
ļ	\exists	ļ						
]	7	ļ					i	
	28	l						
45.9	L	ĺ					Į.	Tape depth 28.6'
	그	İ						Pull 7
Ì	コ						}	From 28.6 to 33.6
1	\vdash					1		Run 5.0
. 1	7	1				96	j	Rec 4.8
Ì	30	İ						C.L. 0.2
ļ	_	j]		Time 10:49-10:59
	7	1			C-73			
į		1			÷ 75			
1	$\vec{\exists}$	Ì				1	ł	
ا ہے د	,, =							
42.5	32				·		-	
ł	7	1	C+1-	ued on s	baa+ #2		- 1	
		ľ	COULTU	weu on s		. 1	1	

	100	Cont 3	Sheet) ELEVATION TOP OF HOLE 674.5			Hole No. 26
MOJECT	-05 111	- ar I	Diversion Dam Har	twell :	Taka	SHEET 3
CTEMS	30 tt 0 p	ber			BOX OR	REMARKS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOV-	SAMPLE	(Drilling time, water loss, depth of weathering, etc., if ugnificant)
642 2 5	326	c	d '	ERY	NO.	wedinering, etc., ij ugnejedne; E
	-		 	+	1	Pull 7 (Continued)
	_	1	Concrete (Continued)		22 0	Pull / (Concinued)
-		!			32.8	
ļ		4 1				
640.9	 	 			} ‡	Tape depth 33.41
1	34 =	ļ '] [Pull 8
ı		4 '			1	From 33.6 to 38.6
!	=	1			1	Run 5.0
;		1			Box	Rec 5.2
ı		1			4	C.L. 0.0
	=	1		104		Time 11:06-11:20
	36	1				
	-	1.	Machine break 36.4'	1		
	-	 	The desired of the second	1	1 +	
		4	1	i I		
1		1		1		
	=	1	1	ļ		
	38 =	1				
	_	1			1 [
635.9	-	1			J }	Tape depth 38.6'
		1				Pull 9
!		4				From 38.6 to 43.6
!	=	1			1	Run 5.0
!	40	†	į daras ir salas ir s	100		Rec 5.0
ļ	-	4 '			1	C.L. 0.0
!	1 =] '	1 /0 91			Time 11:46-11:58
ı	<u> </u>		Machine break 40.8'		1	Note: Changed bits
,		4			1	at depth 38.6' to
ļ		1 '			1	decrease drill time
	42	1 '			1	
1	<u>ا</u> - ` ا	<u> </u>	Machine break 42.3'			
!]	4 !				
1		<u> </u>				
130 5	1 -	1			1	
630.5		1 '			43.6	
1	44	1 '			1	Pull 10
ļ	_	1			Box	From 43.6 to 48.6
!	!	1 '			5	Run 5.0
!		1 '				Rec 4.9
ļ	1 -	1		- 2	1	C.L. 0.1
!	_	ļ '		98		Time 12:41-12:50
!	46	1 1				
!	1 =	1 '				
!	1 =	1			1	
١		1 1	1			
,		<u> </u>				
!	1 -	ŧ :			1 1	
!	48	4 '				
625.9	-	1 '				m doneh 48 61
043.7	-	<u> </u>			→ ⊢	Tape depth 48.6'
ļ		↓ '	C-74			Pull 11
!	1 =	<u>'</u>			1 1	From 48.6 to 53.6
!	_	 				Run 5.0
624.5	50	اـــــــــــا			 	
!	1 =	1 1			1	•
	1 .	4	Continued on sheet #4	t t		,

RILLING	LOG	(Cont S	heet) ELEVATION TOP OF HOLE 674.5			Hole No. 26
ROJECT	<u> </u>		INSTALLATION			SHEET 4
	on Up	per Di	iversion Dam Hartw			OF 4 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if ugnificant)
524.5	50	c	d	e	f	
			Concrete (Continued)		}	Pull 11 (Continued)
	=	1 1	•]	Box	Rec 5.1
		1		1	5	C.L. 0.0
	_	})		102	<u></u>	Time 12:58-1:06
	_		Machine break 51.9'	j		
1	52		machine break Ji.y		1	[
	_	1				
	=	} '				
i		1 1	_		ĺ	
	_	1	Aggregate voids (0-3/8"			Tape depth 53.6'
520.9	-	-	deep) 53.6'-55.6'	1	4 }	Pull 12
	54	1	geeb) 23.0,-23.0,	1.		From 53.6 to 58.6
	1 -	<u> </u>	/	1		Bun 5 0
	-				54.7	Rec 5.0
		1	•	1		C.L. 0.0
] =	1	G	1	1_ 1	Time 1:13-1:20
	-	1	Concrete panel-earth dike interface (0-½"		Box	Note: 100% return
	56	7	deep) 55.6'-58.6'	100	6	drill water, gray
] =	1 /	deep) 33.6 -30.6		1	color then light
	1 =	1 /	} }			brown color at
	_	7 /		l		56.0' depth
] =	1 /				-
	=		Machine break 57.7'			
	58 —	<u> </u>				
515.9] =	7 /		1		Tape depth 57.9'
317.7		 	Bottom of hole 58.6'			
	-	1	portom of note 30.0			
] =	+				
		-				6-5-84- water level
	-	4				not measurable due
	-	1				to standing water
	-	-				around hole after
	-	7		1		drilling - 2-
	-				1	6-6-84 water level
	-	1		1	{	not measureable
	-	7		1		due to standing
	-	1				water around hole
	-	∃	(1	{	24 hours.
	-	7		1		
	-	7				
	1 _	₫		1		
	-	\exists		}		
		7				
	-	1		1		
) -			}	}	
	-	7				
	1 -	7			{	
		_				
	-	7				
	-	7				
		Ⅎ				
		-	1			
			(-75			
	1 :					
	1 -	_	1			
	1			ļ	1	l

										Hole No.	3 0	
			01	VISI	ON		TINSTALI				SHEET 1	٦
CRILL	.IN	G LO	G	S	outh A	tlantic		twell			OF 6 SHEETS	4
I. PROJECT			_		4	_	10. SIZE	AND TYPE	FVATIO	HO Diamond		4
Clems LOCATION	01	l U I	oper L) 1 V	ersion	Dam	4	MSL			•	ł
_Sta. 9	+9	3 5				· · · · · · · · · · · · · · · · · · ·	Ĺ		R'S DES	IGNATION OF DRILL		7
3 DRILLING	_							ME 55		,	·	_
Froehl	(A	4/10 W	no draw	o be	rtson		13. TOT	AL NO. OF DEN SAMPI	OVER- LES TAK	EN	UNDISTURBED	-
and tile ma					30		TOT.	AL NUMBE		BOXES 8		-
S. NAME OF								VATION GR			(24hrs.)	-1
T. Bur	N O	FHOL	<u>. [.] .</u>	Dο	nnahoo	<u>an 5-24)</u>	 		! ST		OMPLETED	4
(Ž) VERTI	CAL		NCLINES			DEG. FROM VERT.	16. DAT	EHOLE	<u> </u>	5-23-84	5 <u>-25</u> -84	
•							17. ELE	VATION TO	POFHO	DLE 674.7		1
7. THICKNES 8. DEPTH DR										Y FOR BORING	94 *	
				Co		81.6ft.	_	ATURE OF			`	1
9. TOTAL DE	FT	H OF	HOLE	<u>, </u>	87.1			S CORE		(Engineer		-
ELEVATION	01	EPTH	LEGEND		CLASSIFIC	CATION OF MATERIA (Description)	ALS	RECOV-	SAMPLE NO.	REMA (Drilling time, wat weathering, etc.,	RKS er lose, depth of	1
674.7	0	•	•	<u> </u>				•	7	manuating, etc.	II elenificano	
	Ì	_		E	Poorly	cemented a	ggre-			Pull 1		E
		_	ł		_	eam .2'4'				From 0.0 t	0 2.1	F
			}	ł	Con	crete		}	_	Run 2.1		F
		_	Ĭ		Poorly	cemented	aggre	90	Box	Rec. 1.9		F
672.6	2		1			one 1.5'-2	.1'	}	1	C.L. 0.2 Time 1:55-	2.02	E
0/2.0				-	(0-%"	deep)		ļ	}	1	2:02 0% return/	æ
			j							drill wa	,	E
			}							color	cci gray	F
		-	}							Tape dep	th 1.9'	
		_	1							Pull 2		上
	Z;			ł				1	}	From 2.1 t	0 7.1	=
		_	!		Machin	ne break 4.	4.			Run 5.0		E
	İ	_								Rec. 5.2		F
								104		C.L. 0.0	0.04	F
		_								Time 2:15-	2:24	F
	6	_	}	}								F
	١		1	ļ			_	·		1		
1	}	_	1		Poorly	cemented	aggre					
667.6	}					zone 6.7'-9				Tape dep	th 7.1'	F
007.0			1		(0-3/8	3" deep)				Pull 3		+
		_		İ				1		From 7.1 t	0 12.1	
	8	_	}							Run 5.0		
	}	_]							Rec 5.0		
	1	=	1					100		C.L. 0.0	0 . 3 E	E
ł		_	1					100		Time 2:28-	2:33	
	ł	_	1	-								F
}	10		<u> </u>									
	l	_	{									
1		=	}						10.9	,		
			İ						10.9	1		
		=							Вох			F
	١, ﴿	_]					2	_		
662.6	1 2	-	1	}							th 12.1'	
				ļ						Pull 4	+ - 17 1	
}		_	}	}		(-76	98		From 12.1 Run 5.0	1/.1	E
		_		}						Rec 4.9		
1		~								C.L. 0.1		F
660.7	14	_								3.2. 3.1		F
]		_		ĺ	Continu	led on shee	t #2					T=
1		_	1	ı					l	1		E'

DRILLING	LOG	Cont S	heet) ELEVATION TOP OF	674.7			Hole No.	30	
PRQJECT				INSTALLATION	11	7 - 1- 0		SHEET 2	
Clems	on Upj	per D	iversion Dam	OF MATERIALS	well	BOX OR		REMARKS	_
ELEVATION	DEPTH	LEGEND		iption)	RECOV-	SAMPLE NO.	(Drilling time weathering,	e, water loss, depth of etc., if significant)	of
660.7	14	С		<u> </u>	•	f			_
			Concrete ((Continued)		Вох		(Continue 38-2:45	D
						2	Time 2.	30-2.43	
	=					1			
	1,, =				98]			
	16								
								_	
657.6	-					4 - 1	Tape Pull 5	depth 17.	0
						1 1		'.1 to 22.	1
	18		Aggregate v	oid (½" deep	b		Run 5.0		
	=		18.2'	014 (2 400)			Rec 5.1		
	=				102		C.L. 0.	.0 :50-2:56	
	=				102		1135 -	. 30 2100	
	20_								
	20-								
	=					}			
] =					! !			
652.6	22					21.9'	Таре	depth 22.	. 1
	=	İ				1 [Pull 6		
] =							2.1 to 27.	1
	-					Box	Run 5.0 Rec 4.2		
] _ =					3	C.L. 0.	. 1	
	24			-	98		Time 3:	:01-3:07	
] =					}			
	1 =] [
	26	}							
	=								
] =	•					_		
647.6	-	1				- }	Tape Pull 7	depth 27.	
	28	{	ĺ					7.1 to 32.	. 1
	28						Run 5.0		
] =	1			1		Rec 4.9		
	_	1			98	1		:14-3:20	
	[=	1							
	30_]							
		}							
	=	1		ented aggre-		1			
	-	1	gate zone 30.7'-33.8	(0-3/8" deep)					
1	=	1	30.7 -33.0	C-77				•	
642.7	32	1	Continued o		1	ш_			

WIEFILLO.	LOG	Ccnt S	heet) ELEVATION TOP OF HOLE 674.7		Hole No. 30					
ROJECT			INSTALLATION			SHEET 3 .				
	on II	ner D	1 · · · · · · · · · · · · · · · · · · ·	rtwell	Lake	OF 6 SHEETS				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE	BOX OR	REMARKS (Drilling time, water loss, depth of				
542.7	3 2 b		d	ERY	NO.	weathering, etc., if significant) *				
42.6	326	<u> </u>	8	- 	32.1	Pull 7 (Continued)				
, , _ ,				i	وحتتا	Tape depth 32.0'				
1	_				1	Pull 8				
			Poorly cemented aggre	-	B	From 32.1 to 37.1				
	_		gate zone (0-3/8" dee	p)	Box					
			30.7'-33.8'		4	Run 5.0				
	34		_			Rec 5.0				
ļ						C.L. 0.0				
1	-		Concrete (Continued)	100	1	Time 9:27-9:32				
1			,							
ļ				1	1					
Ì		1		l	1					
ł				1						
ſ	36			1						
	-			ļ						
				1	}					
637.6	_			1						
0.10		†		<u> </u>	-	Tape depth 37.0'				
	-			1		Pull 9				
		•				From 37.1 to 42.1				
ļ	38	1		Ì		Run 5.0				
ļ	! =					Rec 5.2				
	_			1		C.L. 0.0				
		1		104	ļ	Time 9:41-9:48				
1	=			104	1	11me 9:41-9:40				
1	-	1		[
ŀ	40 _=	1								
ł	140	ł		į	1					
	_	1		Į.						
1	1 –	1								
ļ		1		}						
-	_	}		į						
ļ	=	1								
(22 (,	1			1,21	_				
632.6	42 —	1		ļ	42.1	Tape depth 42.2				
] =] .	_			Pull 10				
	_	<u> </u>				From 42.1 to 47.1				
	\	1				Run 5.0				
	-	1		İ	-	Rec 5.0				
	_	1		100	P - 12	l e				
	44	ł		1100	Box	C.L. 0.0				
	44				5	Time 9:57-10:02				
	-	1		1		1				
	=	1		1	1					
		┨		ł		1				
	=	1		1						
	ļ =	4		1		•				
	46		Machine break 46.0'	İ						
	-									
	-	1		1						
	=	4				Tano dants 47 21				
627.6		1				Tape depth 47.2'				
	=	7		1		Pull 11				
	-	1				From 47.1 to 52.1				
	48 -	1		100		Run 5.0				
	_	4		} =	1	Rec 5.0				
	1 =	1	}	į		C.L. 0.0				
	-	4	· .	78		f				
		1				Time 10:09-10:17				
		7		ŀ	ĺ	1				
	l –	-		l	1	l .				
	-	1				·				
624.7	50 —									

.

RILLING	foe	(Cont S	Sheet) ELEVATION TOP OF HOLE				Hole No. 30	
Clemso	יחוו חכ	ner D	iversion Dam	INSTALLATION Hart	well	Lake	SHE	ET 4 6 SHEETS
	(op)		CLASSIFICATION OF			BOX OR	REMARKS	
ELEVATION	DEPTH	LEGEND	(Description		RECOV.	SAMPLE NO.	(Drilling time, water if weathering, etc., if si	less, depth of
524.7	5 (c	d		e	f		
	-		Concrete (Con	* 4 4 \			Pull 11 (Co	ntinued)
	7		concrete (con	Linued)	}	}	(00	,
	-7				}	Box		
	7				}	5		
522.6	52				1			
,22.0	72 ~~				}	52.1	Tape dept Pull 12	h 52.1
}						}	From 52.1 t	0 57 1
						{	Run 5.0	0 37.1
					į .]	Rec 4.9	
}	۱. ∃						C.L. 0.1	
}	54				98	1	Time 10:32-	10:42
Ì	\exists							
	_=							
	7					Box		
ĺ	7				1	6		
	56 —				}			
}	7				}	{		
17.6	7							
117.0		ĺ	Maahina baala	67 /		}	Tape dept	h 57.1'
}			Machine breaks 57.5,57.7,58.0	5 0/.4,	}		Pull 13	5.0
ł	58		- 58.3 (due to v	, and Jater line		{	From 57.1 to Run 2.5	0 39.
1			- malfunction)		102		Rec 2.6	
1	=	Ì					C.L. 0.0	
ļ		}			[1	Time 10:52-	10:58
{	Ⅎ	}				1	Note: water	
}	60					l I	malfunction	,
				_			drilling pu	
1	7	1					partial run continued d:	
1		}				1	to complete	
1	コ				100		Tape dept	
	62	} 1					Pull 14	
12.6	02 =	ļ				62.1	From 59.5 to	0 62.1
}	コ	}					Run 2.5 Rec 2.5	
}		}					C.L. 0.0	
{	⇉					1	Time 9:32-9	:36
ļ	<i>,</i> ∃	1					Tape depti	
1	64	}					Pull 15	
	크	}		,			From 62.1 to	67.1
1		j			100	}	Run 5.0	
1	E	}				Вох	Rec 5.0 C.L. 0.0	
	\exists]				7	Time 9:45-9:	: 50
}	66	į	Machine break	66.3'	}	1		
}	7		- Hacuthe oreak		}			
07	コ	{		c-79		1	m	- (7 3
07.6	\dashv	1		C-17	-	}-	Tape depth Pull 16	n_6/.1
}	ゴ	1				}	From 67.1 to	721
06.7	68					_ l		
1		- 1	Continued on s		· 7			

RILLING	LOG (Cont S	heet) ELEVATION TOP OF HOLE				Hole No.	
QUECT				INSTALLATION	well	Taka		SHEET 5
Clemso	on Upp	er D	iversion Dam CLASSIFICATION OF		% CORE	BOX OR	RE	MARKS
LEVATION	DEFTH	LEGEND	(Description		RECOV- ERY	NO.	(Drilling lime, weathering, e	water loss, depth of tc., if significant)
06.7	68	<u> </u>	d		<u>e</u>	f		
			Concrete (Con	tinued)				(Continued
-				i	1	Box 7	Run 5.0 Rec 5.0	
1	ᆿ				:	'	C.L. 0.	
					100]		56-10:02
ì	70-					}		
	1 7]		
					ļ			
						1		
							_	1 .1 70 1
602.6	72					72.1'	Tape Pull 17	depth 72.1
						Box		.1 to 77.1
] =					8	Run 5.0	
	=						Rec 5.0	
	=	}			100		C.L. 0.	0):06-10:15
	74-	}			100		lime 10	7.00-10.15
	=							
		}				1		
		}			-			
	=	1						
	76	}			į	1		
	-	}					H	
597.6	=	i					Tape	depth 77.1
	=	}				1	Pull 18	3
		1						7.1 to 82.1
	78	1	Aggregate vo	ide (0-1-"			Run 5.0 Rec 4.5	
	-	1	deep) 78.5'-	79.4	90		C.L. 0.	
		‡	Clay bentoni		'	}		0:22-10:28
			78.1'		Ĭ	1		change in
	-	4	Aggregate vo	ide (0-1"	}	1	1	water color
	80_		deep) 80.1-8	1.4		}		ray to brow depth.
	-	‡	Clay bentoni		j			rop .5' at
] _	7	80.3'					of run
] =	7	Bottom of co	ncrete,		j		depth 82.0
502 6	82_	7	81.6'				From 8	9 2.1 to 87.1
592.6	32 -	E					Run 5.	
	-]					Rec 0.	0
	-	}					C.L. 5	
	-	-	-		0		rime 1	1:11-11:17
	84-	-	1				}	
	04-	3						
		3		4 ^				
	-]		C-8	0			
]						•
588.7	86_]						
• •	100-]	Continued on		i	1	1	

DRILLING	· ŕoe (Cont S	heet) ELEVATION TOP OF HOL	674.7	7			Hole No.	3.0
PROJECT				INSTALLATION					SHEET 6
Clems	on Up	per D	iversion Dam	<u> </u>	Ha	rtwel	1 Lak	<u>e</u>	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF	MATERIALS	1	% CORE RECOV- ERY	BOX OR SAMPLE NO.	(Deilles une	MARKS water loss, depth of tc., if significant)
588.7	86 b	с	d			<u>e</u>	f		<u>g</u>
	-	ľ			- 1		Box	Pull 19	(Continued)
		i	Concrete (Con	:inued)			8 87.1'		.
587.6							07.1	Tape de	oth 87.0'
ĺ	=		Bottom of hole	e 87.1'			i i		25 108/
}	=				ļ		}	Note: Maj	y 25,1984 vel after
	=				Ì			completi	
İ							[[drilling	
}								May 29,1	984 water
ļ	=							level 24	hrs. after
Í	-							drilling	44.5'
}	} —	}	1		1		}		
ļ									
1	=	1			,				
	-	}							
		}]		
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j] =	1							
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		7		C	-81		1		
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	-	7						1	
1	1 .	=	I			1	1	ı	

-							Hole Ne			
DRILL	ING LO		VISION	INSTALL	ation twell	Taka		SHEET	1 SHEETS	
1. PROJECT			South Atlantic				HQ Diamon		SHEETS	
Clemson	n Upp	er Di	version Dam				SHOWN (TBM or MS			
2. LOCATION STA. 9-	(Coordin	elee or Sta	et i anj	MSI	_					
3 DRILLING					SFACTURE	R'S DESIG	NATION OF DRILL	•		
Froehl:	ing a	nd Ro	bertson	13. TOT	AL NO. OF	OVER-	DISTURBED	UNDIST	rumeto	1
4. HOLE NO.	nhee)	n on drawi	30-A	ļ			_ <u>i</u>	<u> </u>		ł
S. NAME OF					AL NUMBE					ł
T. Burn	nette	(J.	Donnahoo 5-29-84)	13. 222			027.7	24 hr		ł
VERTI			DEG. FROM VERT.	16. DAT	E HOLE	5 –	25-84	5-29-8	3 4	
7. THICKNES	5.05.0			17. ELE	VATION TO	P OF HO	. € 675.1]
			Concrete 50.0				FOR BORING		97 😼	
9. TOTAL DE			57.7	-	ATURE OF		om (Engineer	`		
			CL ASSISTED ATION OF MATERI					ARKS		i
ELEVATION 675 1	O PTH	LEGEND	(Description)		RECOV-	BOX OR SAMPLE NO.	(Drilling time, w	eter lose, d L., il eignifi a	epth of icanti	
3,3,4	_		Concrete				Pull 1	<u> </u>		F
	=	1			([From 0.0	to 2.7	7	F
		1			93		Run 2.7		,	二
	=	1				Box	Rec 2.5		ļ	F
	2 =	1				1	C.L. 0.2 Time 1:48	-1.55		F
(, , ,)		1			Į					F
672.4] =	1			<u></u>		Tape de	pth 2	. 6 '	F
		}			<u> </u>		Pu11 2		_	F
!	_	}					From 2.7 Run 5.0	to /.	′	F
•	4	1					Rec 5.2		١	E
[=	1	Occasional aggreg	ate			C.L. 0.0		ĺ	
!	=	1	voids 4.4'-5.8'		104		Time 9:29			E
1	=	1					Note: 100 drill wat	-		上
[=	1					color	er- g	Lay	E
§	6	1								上
	=	1								
		1								
		3				•				
667.4	[=	1				'	Tape de	pth 7	<u>. 7 ' </u>	F
[8 -	1	Occasional aggreg	ate	(Í	Pull 3 From 7.7	to 12	7	
	=	1	voids 8.3'-8.6'		i		Run 5.0	10 12	• /	E
Í	_=	1			Ì		Rec 4.9			
	=	1				1	C.L. 0.1			
	_ =	1			98		Time 9:46	9:52		
	10	1			•	1				
	=	1								
]			1	11.0'				
] =	}			1					
	12_	}			1					H
662.4]			<u> </u>	Вох	m t	1_11 :	2 (!	
002.4	=	1		C-82		2	Tape de Pull 4	ptn I	4.6	F
1	-	1		C 02	1	(i	Pull 4 From 12.7	to 1	7.7	F
		1			<u> </u>	1	Run 5.0	20 1	/	F
661.1	14	1						_		F
1	=	1	Continued on shee	t #2				- -		F
•	' -	J	1		ļ	I	I			

DRILLING	roc	(Cont	Sheet)	ELEVATION TO	of of Hou	75.1				Hole No. 30A
Clems	son Up	per	Diver	sion I	Dam	INSTALLATION	Наз	rtwell	l Lake	SMEET 2
ELEVATION	DEPTH	LEGEND		CLASSIFICA		MATERIALS		RECOV.	BOX OR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
66141	14ь	с			d	·		ERY	NO. f	Weathering, etc., if significant;
	16		Con	crete	(Con	tinued)		102	Box 2	Pull 4 (Continued) Rec 5.1 C.L. 0.0 Time 10:00-10:07
657.4	18 —								-	Tape depth 17.6' Pull 5 From 17.7 to 22.7 Run 5.0
	20							96		Rec 4.8 C.L. 0.2 Time 10:15-10:24
652.4	22 -								22.0 Box	Tape depth 22 Pull 6
	24							104		From 22.7 to 27.7 Run 5.0 Rec 5.2 C.L. 0.0 Time 10:31-10:40
647.4	26									Tape depth 27.7'
	28 —						!	96		Pull 7 From 27.7 to 32.7 Run 5.0 Rec 4.8 C.L. 0.2 Time 10:47-10:58
643.1	32				-	С-	83	_		
_			Соп	tinue	d on	sheet #	3			

DRILLING	LOG	Cont S	heet) ELEVATION TO	67	5.1			Hole No.	3 O A	_
OJECT :				INSTAL	LATION		-		SHEET 3 SHEETS	Ì
Clems	on Up	per D	iversion D	am	Hart	well			MARKS	-
ELEVATION	DEPTH	LEGEND		TION OF MATER Description)	IALS	% CORE RECOV. ERY	BOX OR SAMPLE NO.	(Drilling time.	water luss, depth of tc., if significant)	
643.1	32ь	c		d		<u> </u>	f		8	
	_						Box 3		Continued)	_
42.4	=		Concrete	(Continu	ed)		32.2		epth 32.5'	/
	_				·		185.5	Pull 8	7 to 37.7	
	\ =							Run 5.0	/ [0 3/./	
	\ _	}						Rec 5.2		
	34 —							C.L. 0.0		
	-					104	Box	Time 11:		
		1					4			
	-	1								
		1]			1				
	36	1								
	1 =	1						1		
	-	1	į			1				
			1			1	1	!		
	-	}	Į.			I.	1	Tape d	epth 37.7'	
637.4	38 _	-					1	Pull 9		
	-	7				!	i		7 to 42.7	
	-	-				i i		Run 5.0		
!		1				i		Rec 4.9 C.L. 0.1		
	,	1				98			22-11:33	
		-	1			70		· ITHE II.		
	40 —	-	1							
{	-					1				
1		7					•			
		3					:			
}		7								
[42 _	-					U			
(22 /		7	į				:	Tape o	lepth 42.6	·
632.4			1					Pull 10		
	_	コ					43.6	E / 2	.7 to 47.7	
		7				1	43.6	- Kun J.v		
ļ	44 _					;		Rec 5.1	_	
		₫.				:	Box	C.L. 0.	0	
1	i	-	i			102	5	Time 12	: 31-12:46	
1	_	=	!			ì	:	1		
{		\exists	1			:				
		\exists	:			1	1	,		
}	46 -	٦	Machine	break 46	.3'	}	1			
	:	1	1			1				
	- : 	ゴ	1			Ì	1			
	:	-	1			i i	ŀ		3 L	,
627.4	1	\exists					-	Pull 11	<u>depth 47.7</u>	
	48 -	_					1		.7 to 52.2	
1	1	3						Run 5.0		
1	1	7			0.01	, 100	o ¦	Rec 5.0		
1	_	コ			C -84		_	C.L. 0.		
}						}	1		:53-1:05	
625.1	50 _		.							
1		4	Continu	ed on she	opt #4	}				
1	1	4	Concinde			1	1	1		

KILLING	rog	Cont S		5.1		=	Hole No.	3 0 A
C1				TALLATION				SHEET 4
Clemso	n Upp	er Di	iversion Dam		rtwell	Lake		OF 4 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MAT (Description)	TERIALS	RECOV.	SAMPLE	(Drilling time, .	AAPKS -aler loss, depth of
25.1	5 Оь	c	d		ERY	NO.	weathering, etc	c., if significant)
				1	 	-	P ₁₁ 1 1 1 1 1	(Continued)
		1	Concrete panel, fill interface			Box		(Continued)% return
}		1	deep) 50.0'-57.		}	5		ter, gray
			Machine break 5	í.3'		1	color the	
}							color at	
	52						depth 49	
į	-				1	}	-	
22.4								epth 52.7'
ĺ		1			}	}	Pull 12	
	-							7 to 57.7
		1. 1	Machine break 51	3.9'	60		Kun 5.0	
	54			- • -	{	1	Rec 3.0	
		1				54.5	C.L. 2.0	. 1.00
ļ	_				ļ		Time 1:1	5-1:23
Ì			! • •		}	Box		
}			 		1 !	6		
	56					į		
ì					(,		
		1			1			
	-	1	•		i 1			
17.4		Ĺ			<u> </u>	57.7"	Tape de	epth 56.3'
!	58			1	1	!		
		•	Bottom of hole S	5/./	1			
	-	:			<u> </u>			
i					1	}	Noto: 5-1	29-84 wates
1	 				1	i		er drilli:
1					!		33.5'	ce delli.
			I		į :			
i	_				ĺi	1	5-31-84 w	ater level
į					[i	24hrs. af	ter
	-	i.			1	į	drilling	47.7'
1	-) 			
}					[1		
į	1111					; ;		
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)			1			
į	1111							
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}		Ì			!	Ì		
1		1			: !	- }		

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Hole No. 30B

	_						Hole No.	308
		OIV	ISION	INSTALL	ATION			SHEET 1
	ING LO	6	South Atlantic	Ha	ctwell	Lake		OF 4 SHEETS
1. PROJECT	n 11.n.	or Div	version Dam				HO Diamond	
2. LOCATION				4	MSL		JHOWN (IDM OF MILE)	'
STA. 9						R'S DESIG	SNATION OF DRILL	
3. DRILLING	AGENCY			1 c	ME 55			į
Froehl	ing a	nd Ro	bertson		AL NO. OF	OVER-	DISTURBED	UNDISTURBED
4. HOLE NO.	(As show whee)	on drawte	- :	BUR	DEN SAMP	LES TAKE	N	
S. NAME OF	DRILLER		3 O B		AL NUMBE			
Tommy	Burn	ette		15. ELE	VATION GE	OUND WA	TER 646.4 (2	4hrs.)
6. DIRECTIO	N OF HOL	E		IS. DAT		STA	RTED CO	MPLETED
A VERTIC	CAL []	NCLIN E O	DEG. FROM VERT.	16. 021		5/	31/84 : 6	5/1/84
7. THICKNES	S OF OVE	RBURDEN			VATION TO		0,3.1	
S. DEPTH DR	ILLED IN	TO	Concrete 67.5				Y FOR BORING	100 3
9. TOTAL DE	PTH OF	HOLE 6	001161666		ature of ncy Re		(Engineer)	,
3. 101AC 0C	FIN OF	1022 8				BOX OR	REMA	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA (Description)	ALS	RECOV-	SAMPLE NO.	(Driffing time, wat	er lose, wepth of
6751	0 6	c	<u>d</u>		•	10.	g	it eigniticand
			Segregated aggreg	2 t A			Pull l	F
		İ	zone 0.0-1.8'	u . c	1 00	1 _	From 0.0	to 2 5 E
	_	}	ZUNE U.U-1.0		88	Box	Run 2.5	F
					}] 1]	Run 2.3	
	_							⊢
		[***			i i	C.L.0.2	
	2	1			ł		Time 2:10	J-2:1/
672.6	=		Concrete			<u> </u>	Tane de	epth 2.35
			3011414				Pull 2	
					[From 2.5	+ 2 7 5 F
	_				Ì			
		}			}		Run 5.0	!
	4	}	_ Poorly cemented		104]	Rec 5.2	F
	=		aggregate (0-½" d	eep)	104		C.L. 0.0	
	_		4.1'-6.1'	•		[[Time 2:23	—
					ĺ			0% return 📙
	_				ì	}	drill wat	er-gray 📙
	_				<u> </u>]	color	
	6 —				†			├
			-	-	{	[F
					1			E
						}		⊢
667.6]])		
007.5	_				<u> </u>			epth 7.5'
	8				Ì	i 1	Pull 3	F
	°				İ	i l	From 7.5	to 12.5
	_				}	}	Run 5.0	F
	=				}		Rec 4.9	
]]			1		C.L. 0.0	F
	-				98	[Time 2:35	5-2:42
	_ =		_ Aggregate void (½	11	1			F
	10-		_ deep) 9.9'		}	!		F
	=		Poorly cemented		1			E
,] =]	aggregate zone (o	-14"]		F
		{	deep) 10.1'-11.5'	-		11.2		
	=		<u> </u>		1			}-
	_				}	Box		Ţ
	12-]			1	2		 -
662.6							Tana da	epth 12.5'
002.0			Poorly comented		 	(Pull 4	-pen 14.5
			aggregate zone 12	.6'-	}]		5 to 17.5
	-		18.5' (0-1½" deep	0-86]			, to t/.3 L
					<u> </u>		Run 5.0	F
661.1	14_						11	
, , , , , , , , , , , , , , , , , , ,	- ~							E
	=	1	Continued on shee	t #2	1	ļ		F

RILLING	LOG (Cont S	heet) ELEVATION TOP OF HOLE 675.1			Hole No. 308
ROJECT			INSTALLATION			SHEET 2 OF 4 SHEETS
Clemso	n Upp	er Di	version Dam Ha	rtwell		
ELEVATION	ОЕРТН	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
661.1	14ь	c	d	· · ·	f	<u> </u>
	16		Poorly cemented aggregate zone (0-15" deep) 12.6'-18.5'	100	Box 2	Pull 4 (Continued) Rec 5.0 C.L. 0.0 Time 2:51-3:04 Note: 5 minute down time to refill wate tank
						Tape depth 17.3'
657.6] =]]	Pull 5
	1 =			}		From 17.5 to 22.5
	18					Run 5.0
	=		Poorly cemented			Rec 5.2
	-		aggregate zone (0-½" deep) 18.5'-21.1'			C.L. 0.0 Time 3:10-3:18
	_	1	1000	104		11me 3:10-3:10
		1				
	20	1				
]				
	1 =	7		ł		
	-	7	-			
	=	1				1
	22	1			22.3	•
652.6] =	7	•	<u> </u>	_	Tape depth 22.5
	=	†				Pull 6
	_	1			Box 3	From 22.5 to 27.5 Run 5.0
	i -	1	Segregated aggregate zone 23.5'-25.0'	!	ر	Rec 5.0
	24	1	2011e 23.3 -23.0			C.L. 0.0
	-	1		100		Time 3:24-3:31
	-	1 .	Poorly comented come		1	
	-	1	Poorly cemented aggre- gate zone (0-½" deep)	}		
	_	1	25.0'-30.0'			1
	26 _	1	}	}	}	
		1				
		1			}	
	-	}				
647.6		_	Segregate aggregate		4	Tape depth 27.5'
	28	}	zone 27.5'-31.5'			Pull 7
		}				From 27.5 to 32.5 Run 5.0
		}				Rec 5.0
	_	7		100		C.t. 0.0
}		7				Time 3:37-3:43
}	120	7				
]	30 _	#		}		
}	}	7	Poorly cemented aggre-	_		
1		#	gate zone (0-12" deep)			
}		⇉	31.0'-32.0' C-87	,		
	1	_	C-8/		1	
16/2 1	132 -	<u> </u>				
643.1	-			- 1	1	1

RILLING	LOG (Cont S	heet) ELEVATION TOP OF HOLE 675.	. 1			Hole No.	308		↲
IOJECT) IP	ISTALLATION		T = 1		SHEE	T 3 4 SMEETS	
Clemso	n Upp	er Di	version Dam		WETT	Lake SOX OR		REMARKS		┨
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF M. (Description)	ATERIALS	RECOV- ERY	NO.	(Drilling tim weathering	e, water lo , etc., if sig	ss, depth of mificant)	
43,1	32ь	c	d		<u>e</u>	32.5	Pu11 7	(Cont	inued)	┪
42.6	_		Concrete (Cont:			32.3		depti	inued)	_
-	_		Segregated aggs zone 32.5'-33.3	regate		Box	Pull 8 From 3:) 5 tc	37.5	
			zone 32.3 -33 -			4	Run 5.			
	_						Rec 5.			i
	34						C.L. 0	. 0	. = 7	
	=	1			100		Time 9 Note:	:4/-9: 100% -	:)/ r <i>etur</i> n	
	=	1							ter gra	у
	-	}					color			
	=]								
	36	}		į						
) =	1								
37.6	=	1				<u> </u>			h 37.5'	
		1					Pull 9		0 42.5	
	38 —	1					Run 5.		0 42.5	
	=	1					Rec 4.			
		-	 			1	C.L. 0		/	
	-	-			98		Time 1	0:06-	10:14	
	40			i i						
	40 -	7								
	-	3					j 			
	_	1								
		_					1			
	42 —	1								
632.6	-	7		_		_		dept	h 42.4	<u>-</u>
	-	- 1 ·		-			Pull 1	.U .2 5 f	0 47.5	
		=		i		43.4'	Run 5.	0		
	-	∄					Rec 5.	1		
	44 -	∃				i	C.L. ().0	10.33	
	} :				102	Вох	Time	.0:24-	-10:55	
	_	#				5				
		7					1			
		‡				ĺ				
	46 —	7								
		3								
	_	3					_	•		
627.6	İ	₫				-	Pull		th 47.5	÷
	48 -						From	47.5	to 52.5	
		ゴ					Run 5	. 0		
		_			100		Rec 5			
	-	7		C-88			C.L. Time	0.0 10:38	-10:45	
		7					TIME	, , , ,	• • •	
625.1	50_]			 					
		\Box	Continued on	1	1	1	1			

RILLING	LOG	Cont Si	heet) ELEVATION TOP OF HOLE 675.1			Hole No. 30B
OJECT			INSTALLATION	ll Lake	a	SMEET 4 OF 4 SMEETS
C1emso	п. Ирр рертн	LEGENO	version Dam Hartwe Classification Of MATERIALS (Description)	% CORE RECOV. ERY	BOX OR SAMPLE	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
25.1	50ь	c	d	e	1	8
			Concrete (Continued) - Segregated aggregate zone 50.5'-54.5' - Machine break 51.4'			Pull 11 (Continued)
22.6	52			100	54.5°	Tape depth 52.5' Pull 12 From 52.5 to 57.5 Run 5.0 Rec 5.0 C.L. 6.0 Time 10:51-10:58
617.6	56 -		Machine break 55.9'	100	6 6	Tape depth 57.5' Pull 13 From 57.5 to 62.5 Run 5.0 Rec 5.0 C.L. 0.0 Time 11:04-11:13
612.6	62 -					Tape depth 62.5' Pull 14 From 62.5 to 67.5 Run 5.0
	66 -		Concrete panel-earth dike interface (0-½" deep) 65.8'-67.5' Machine break 66.9'	G-80	65.5°	at depth 65.0'
607.6	-	-	Bottom of hole 67.5'		07.3	Tape depth 67.4' Note: 6-1-84 water level after drilli 25.0'. 6-4-84 wate level after 24hrs

•							Hole Ne.		_
0011			VISION	INSTAL	ATION			SHEET 1	7
	ING LO	<u> </u>	South Atlantic		artwe			OF 4 SHEET	븨
1. PROJECT		_					HO Diamond		4
2. LOCATION	son Up	per I	Diversion Dam	_		,EVA I I GR	380WR (18# QF #SL	,	1
STA.		9100 OF 3(4	at lary	MS		P'S OFSI	GNATION OF DRILL		
3. ORILLING					55	ER J DESI	~		
Froehl	ing a	nd Ro	obertson	13. TOT	AL NO. OF	OVER-	DISTURBED	UNDISTURBED	_
4. HOLE NO.	(Ac show	on draw	_ ·	BUR	DEN SAMPI	LES TAKE	IN .		
S. NAME OF			30C	14. TOT	AL NUMBE	R CORE B	OXES 6		7
Tommy		tte		IS. ELE	VATION G	OUND WA	TER 634.1	(24hrs)	7
6. DIRECTIO				+		STA		OMPLETED	-
ZVERTI	CAL [NCLINE	DEG. FROM VERT		E HOLE	6-	-1-84 6	-4-84	
<u> </u>				17. ELE	VATION TO	P OF HO	LE 675.1		
7. THICKNES	S OF OVE	RBURDE	N	18. TOT	AL CORE F	RECOVER	Y FOR BORING	100	7
S. DEPTH DE	RILLED IN	70	Concrete 62.4	19. SIGN	ATURE OF	INSPECT	OR		7
9. TOTAL D	EPTH OF	HOLE	62.4	Nan	cy Red	ctor	(Engineer)		
ELEVATION	DERTH	LEGEND	CLASSIFICATION OF MATERI	IALS	3 CORE	BOX OR	REMA	RKS	
675 1	1 _		/ and cription		ERY	NO.	(Drilling time, wat weathering, etc.	, if significant)	1
0/341	0	•	ļ		 •	 '			
1			Concrete			1	Pull 1		F
	=		Couciere			Вох	From 0.0	to 2.4	上
1	-				96	1	Run 2.4		-
] =				'	_	Rec 2.3		F
1	2 =						C.L. 0.1		F
672.7	-				l	1	Time 1:58		
-	=					1		ـر'pth 2.3	+
ļ						}	Pull 2		F
	4						From 2.4	to 7.4	
ł	=						Run 5.0		
Í	4		1		98		Rec 4.9		<u> </u>
ł					}	Į į	C.L. 0.1	2 10	F
)	=		ļ			j	Time 2:11 Note: 100		
					İ		1		° 1
İ						1	drill wate	er, gray	F
[_				ł		00101		F
ł	6		i						二
ł	=]			E
1	=		1						F
						ĺ		. 1 7 21	
667.7	=					4	l	oth 7.3'	上
ŧ.		į .			ļ		Pull 3 From 7.4	to 12 /	E
l	8 =	}	_ Segregated aggres	gate		}	Run 5.0	10 12.4	
j	_	j	zone 8.2'-8.8'		104	İ	Rec 5.2		F
	=		-		104		C.L. 0.0		F
		1	į.		ļ		Time 2:22	-2:30	E
ì	=				ł	1			F
1	10_		}		ļ	}	ļ		
1									
	_	1			İ				-
		İ			ļ	11.0			F
	-	1]	1			F
	=	Į	1		İ]	-		
J	12 -)	Ì			Вох			F
662.7	-				{	2	Tape des	oth 12.4'	
1	=		1			1	Pull 4		- <u>-</u>
			1		C-90		From 12.4	to 17.4	F
j.	=]		Run 5.0		
	[=		1			[_		F
661.1	14			<u> </u>	<u> </u>				
1	=	l	Continued on shee	at #2				_ 	F
!	1 -	I	1 John Linden on Shee			ļ	-		

RILLING	LOG	Cont S	heet) ELEVATION TOP OF HOLE 675.1			Hole No. 30C
DJECT			Mainten		- 1	SHEET 2
lemso	n Upp	er Di		artwell I	BOX OR	REMARKS
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOV-	SAMPLE NO.	(Drilling time, water loss, depth of weathering etc., if significant)
	146	c	d	e	f	8
	_		Concrete (Continued)		Box	Pull 4 (Continued) Rec 4.9
	} =			1	2	C.L. 0.1
						Time 2:40-2:48
] =	}		98		Note: Changed bits
	16	}				at depth 12.4' to decrease drill time
		}				decrease drill time
		}		1		
	_	1				Tape depth 17.3'
57./	=	1			7	Pull 5
	18	₫		{	{	From 17.4 to 22.4 Run 5.0
	1 -	∄	}	}		Rec 5.2
] =	1				C.L. 0.0
	-	‡		104		Time 9:32-9:40
	} -	4				
	20 _	7)		
	-	7	1		{	
	-	7				
		7				
		\exists			21.9	<u></u>
50 7	22 —	3				Tape depth 22.5
52.7	-					Pull 6
	_			Ì	Box 3	From 22.4 to 27.4 Run 5.0
	1				3	Rec 4.9
		7				C.L. 0.1
	24 -	7		98		Time 9:46-9:54
		7		1	į	
	-	7			}	
		\exists				
	26 -	Ξ		1		
		\exists				
		7			1	
547.7	-	7	,	\		Tape depth 27.4'
047.7		\exists				Pull 7
	28 -	7				From 27.4 to 32.4 Run 5.0
		\exists		}	}	Rec 5.1
	Ì	7				C.L. 0.0
		3		102		Time 9:59-10:06
	1	\exists				
	30					
		1			, }	
			Machine break 30.9	· C-9	'	
		4				}
		1				
643.1	32	<u> </u>				
i		4	Continued on sheet	#3		(

RILLING	LOG -(Cont S	heet) ELEVATION TOP OF HOLE 675.1			Hole No. 30C
DIECT			INSTALLATION		· - ' -	SHEET 3
Clemso	n Upp	er Di		well	Lake	REMARKS
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
434.1	3 2b	c	d	<u>. e</u>	f	Pull 7 (Continued)
42.7			Concrete (Continued) 🚐	1	32.41	Tape depth 32.5
Ì	=		Į.		1	Pull 8
İ			\		1 ' 1	From 32.4 to 37.4
{	_		\	}	1.	Run 5.0
	34	1	1		Box	Rec 4.9
,				0.0	4	C.L. 0.1 Time 10:12-10:21
	_	1		98		Time 10:12=10:21
		1		1		<i>:</i>
·	_	1			1	
ļ	36	1			1	
		1				
	=	7				(
		1				Tape depth 37.4'
37.7] =	1			-	Pull 9
	1 20 -	‡				From 37.4 to 42.4
	38 —	1			1	Run 5.0~
	=	4			1	Rec 5.1
	_	4		102		C.L. 0.0
	=	7				Time 10:28-10:38
	-	7				
	40 —	7				
	-	4				
	_	7				
	-	7				
		4				
632.4	42 —	#			į	Tape depth 42.5'
552.7]				7	Pull 10
					j	From 42.4 to 47.4
	-	‡				Run 5.0
		⊣			43.71	Rec 4.9 C.L. O.I
	44 _	Ⅎ			Box	Time 10:45-10:54
				98	5	
		=				
					1	1
	46 -					
		_				
	_				1	
627.4				ļ	4	Tape depth 47.4' Pull 11
		\exists				From 47.4 to 52.4
	48 -	_	}			Run 5.0
		1		102		Rec 5.1
		\exists		1		C.L. 0.0
		\exists		C-90	=	Time 11:01-11:12
		7				
625.1	50 _	┦		+		
	ļ	7	, , , , , , , , , , , , , , , , , , ,			
		-	Continued on sheet #4	-		1

į

RILLING	LOG -	Cont S	heet) ELEVATION TOP OF HOLE	675.1			Hale No. 30C
ROJECT			1	NSTALLATION		. ,	SHEET 4
Clems	son Up	per !	iversion Dam		twell	Lake Box OR	OF 4 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF A (Description)		RECOV- ERY	SAMPLE NO.	REMARKS (Drilling isme, water loss, depth of weathering, etc., if significant)
-2 5a 1	50ь	С	d		<u> </u>	f	<u> </u>
	=		Concrete (Cont	inued)))	Pull 11 (Continued)
						Вох	•
						5	
:							
00 /	52						(m 1
22.4						-	Tape depth 52.5'
							From 52.4 to 57.4
		ļ					Run 5.0
							Rec 4.8
	54						C.L. 0.2 Time 11:31-11:43
					96	54.7	Note: Changed from
	7					54.7	bottom discharge to
							face discharge bit
	_						at depth 52.4'
!	56 —						
						D	
						Box 6	
17.4	=						Tape depth 57.4°
	=						Pull 13 From 57.4 to 62.4
	58 —						Run 5.0
į			_ Machine break	58.7°			Rec 4.9
		i	Concrete panel				C.L. 0.1
i	; =		dike interface 62.4' (0"-1" d		98		Time 11:49-11:58
		/	·	•			Note: 100% return drill water gray
-	60		Machine break Machine break	60.2'	1		color then brown as
	i 7	 - 	-				depth 59.0'
			_ Machine break	61.0'			
			_ Machine break	61.5'			
:	62		Machine break	61.8			
12.4	,					62.41	Tape depth 62.3'
			Bottom of hole	62.4'			
							Note: 6-4-84 water
					1		level after drilli
	=						18.8'
	=						6-5-84 water level
		1					24hrs. after drilling 41.0'
	\exists						
Ì							
9							
					C-93		
	-				}		

ţ

				Times	A 71 A4:		noie No.	300	
DRILL	ING LO	~ 1⁻	VISION	INSTALL		T a 1		SHEET	1 SHEETS
PROJECT		- 18	outh Atlantic		rtwell		HQ Diamond		JUEE 13
	11-	D	danamadan Dam				SHOWN (TBM or MSL)		
LOCATION	(Coordin	etee or Sta	iversion Dam	M.	SL				
STA.	9+87					R'S DESIG	GNATION OF DRILL		
DRILLING			,] c	ME 55				
			obertson	13. TOT	AL NO. OF	OVER-	DISTURBED	UNDIST	URBED
HOLE NO.	(Aq show nbec)	n on drawi	ing title	BUX	DEN SAMP	LES TAKE	·*	<u>: </u>	
NAME OF	DRILLER		<u>30D</u>	14. TOT.	AL NUMBE	R CORE B	OXES 8		
Tommy				15. ELE	VATION G	ROUND WA	TER Not mea	surat	110
. DIRECTION				1		STA	RTED CO	MPLETE	0
X VERTIC	-AL []	INCLINED	DEG. FROM VERT.	16. DAT	ENOLE	6 –	18-84	6-20-	-84
				17. ELE	VATION TO	P OF HO	LE 674.7		
. THICKNES				18. TOT	AL CORE	RECOVER	Y FOR BORING		00 %
. DEPTH DR	HELED IN	TO BOOK	Concrete 80.7		ATURE OF				
. TOTAL DE			80.7	Nan	cv_Rec	tor	(Engineer)		
			CLASSIFICATION OF MATERIA			BOX OR	REMAI		
LEVATION		LEGEND	(Description)	-	RECOV-	NO.	(Drilling time, water weathering, etc.,	er loss, de il signifi	epth of cant)
74.07	0 b	٠	<u> </u>		<u> </u>	- 1	9		
	_	<u> </u>	Loose aggregate zo	ne	1		Pull 1		
j	_	}	0.0'-0.2'		1	Вох	From 0.0 t	0 4.	0
		1				1	Run 4.0		
	_	1	Concrete		1		Rec 4.0		
	=	1	Machine break 1.5'		100		C.L. 0.0		
	2 —	1	}		1		Time 2:05-		
}	_ =	1			1		Note: 100%	ret	urn
	_	1			[1	drill wate	er-gr	ау
		1			Ì	1	color	_	
	_	<u> </u>	1		1	}			
	_	ł			1				
70.7	4 —	1	Poorly cemented ag			1	Tape der	th 4	<u>.0'</u>
	· -	<u> </u>	gate zone (0-3/8"	deep)			Pull 2		_
	=	}	4.0'-4.5'		}	1	From 4.0 3	0 9.	0
		1			1		Run 5.0		
	_	<u> </u>	Machine break 5.4'		1		Rec 4.9		
	_	1	lacutue oreak 3.4		98		C.L. 0.1		
	6 —	1			, ,,		Time 2:23-	-2:32	
		1			-				
	_	 	Machine break 6.7'	-	1				
		1	1				}		
	_	1]				
	=	1							
	8 —	1	1		[
			 Machine break 8.4'		1				
65.7	_		Dreak 0.4		1				
٠. د ن]	1			1	Tape de	oth 8	.9'
	_	1					Pull 3	_	_
	_	 					From 9.0	to 14	. 0
ď	10-		Machine break 10.0) †	1	}	Run 5.0		
	_	1	1		100		Rec 5.0		
	_	<u> </u>	1		1		C.L. 0.0	• • •	
		}				11.2	Time 9:21	-9:33	
	_	1			-		1		
	_	<u> </u>			i	Box	1		
	12]			ł	2			
	_	1	Segregated aggrega	ite	C-94	-			
	_	j	zone 12.4'-13.1'			1			
	_]					ĺ		
	_	Í			{	1	}		
	_	{	1		}				
660.7	14-	1					Tape de	oth 1	3.9'
		1	}		ļ				
	_	1	Continued on sheet	# 2	[
ł	_	1	I		1	1	J		

	LOG	Cont S	heet) ELEVATION TOP OF HOLE 674,7			Hole No. 3 QD
ROJECT Clemso	n IInn	er Di	version Dam Hartwe	11 T.s	ke	SHEET 2 OF 5 SHEETS
			CLASSIFICATION OF MATERIALS	% CORE	BOX OR	REMARKS (Drilling time, water loss, depth of
ELEVATION	DEPTH	LEGEND	(Description)	RECOV- ERY	NO.	weathering, etc., if significant)
6047	14b	с	Concrete (Continued)	<u> </u>	f	Pull 4
			concrete (concinded)		Вох	From 14.0 to 19.0
					2	Run 5.0
	_					Rec 5.0
				100		C.L. 0.0 Time 9:39-9:52
	16 —		Machine break 16.3'	}		11me 9:39-9:32
			- Machine break 10.5			
				<u> </u>		
	=					
	18 —		Aggregate void (½" deep))		
	_		18.2' Poorly cemented aggre-	ļ	!	
555.7			gate zone (0-3/8" deep)	·	į l	Tape depth 18.9' Pull 5
	-	[18.9'-19.5'	i 1	!	From 19.0 to 24.0
	20 —		Machine break 20.0°			Run 5.0
	20 -			!		Rec 5.1
	_	į		102	: 1 •	C.L. 0.0 Time 9:59-10:12
	·	Ì		;	;	1 1 mc 3 , 3 y - 4 0 , 1 2
	-	<u> </u>		1	i .	
	22 —			{ ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	22.0'	
	_			i	1	
	_			! !	Box	
				1	3	
iso 7	_		- Machine break 23.6'	i		Tape depth 24.0°
550.7	24 —	ļ	Poorly cemented aggre- gate zone (0-3/8" deep)	<u> </u>	1	Pull 6
			23.6'-24.0'			From 24.0 to 29.0
		i i		[Run 5.0
	_			100		Rec 5.0 C.L. 0.0
	26 —			: - -	1	Time 10:19-10:30
	120		_ Poorly cemented aggre-	[
	_		gate zone (0-3/8" deep)	1		
			26.5'-27.5'	1	1	
	=	 -	Machine break 27.6'	İ		
	28 -			į		
	! -					
545.7	!	!		ļ	į :	Tape depth 29.0'
	! =	!		!		Pull 7 From 29.0 to 34.0
						Run 5.0
	30 -				<u> </u>	Rec 4.9
	=		C-95	98	;	C.L. O.l Time 10:35-10:44
	-					11mc 10,33-10,44
	_					
	32			<u> </u>		
542.7					1 -	

			heet) ELEVATION TOP OF HOLE			Hole No. 30D
ouct Clemso	n Upp	er Di	version Dam Hartwe	11 Lake	e	SHEET 3
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
42.7	3 2ь	c	Machine break 32.1'		Box	Pull 7 (Continued)
			Machine break J2.1		32.8	Pull / (Continued)
			Concrete (Continued)			
				}		
40.7	34 —				1	Tape depth 33.9'
					Box 4	Pull 8
					4	From 34.0 to 39.0 Run 5.0
	1				{	Rec 5.0
	36 —			100	1	C.L. 0.0 Time 10:51-11:02
į				}		
			Mochine twenty 27 11			
İ			Machine break 37.1'			
				}	1	
İ	38 —					
7				}	}	
35.7					+	Tape depth 38.9'
	_					From 39.0 to 44.0
	40			}	}	Run 5.0 Rec 5.0
					l i	C.L. 0.0
				100		Time 11:09-11:20
	42 —					
	_					
			-	1	{	
			Machine break 43.4'	}	43.4	
30.7	44				Вох	Tape depth 43.9'
!					5	Pull 10 From 44.0 to 49.0
(=			į	}	Run 5.0
į				100	{	Rec 5.0 C.L. 0.0
			Segregated aggregate	100		Time 11:27-11:38
	46 -		zone 45.9'-46.8'))	
			Machine break 46.8'			
				j		
	48 -				}	
	=		Machine break 48.5'			Mana desert / 0 aa
25.7			A 0/		{	Tape depth 48.9'
			C-96	}		From 49.0 to 54.0
24.7	50					
		.)		,		

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RILLING	LOG	(Cont S	heet)	LEVATION	TOP OF HO	674 <u>.</u> 7	·			Hole N	o. :			4
POJECT				ion D) n m	INSTALLATIC	N rtwe	ll Lal	сe			SHEET	4 SHEETS	
Clemso	n Upp	er Di				MATERIALS		% CORE	BOX OR		REA	AARKS		٦
ELEVATION	DEPTH	LEGEND		CLASSIFIC	(Description			RECOV- ERY	SAMPLE NO.	(Drilling) weathers	ime. L ng, cl	cater loss c., if sign	, aepin oj ificant)	
52427	5 Ob	с			<u>d</u>			<u>e</u>	f			<u>g</u>		7
	=		Mac	hine	break	50.1	•			Run 5		(Con	tinued	1
	=	1	Con	crete	e (Cor	itinue	d)]		Rec 5	. 0			
		1			•			100]_]	C.L.	0.0	/ 7 1	1.50	
	=	1			1		•		Box 5	Time	11:	4/-1	1:39	
1	52 -	<u></u>	- Mac	nine	breas	c 51.9								ı
	=	}						-						
	_	1												
	=	‡												
620.7	-, -	4							54.0	<u>Tap</u>	e d	epth	53.9'	
020	54 -	7								Pull			500	
]								From Run 5		0 to	59.0	
										Rec 5				
	_	1								C.L.			0.0	
	56 -	╡						102	Box	Time	12:	5/-1	:08	
	=	7							6					
	-	7												
								ļ						
		-	1	, ,		k 57.9	,	1						
	58 —		mac	nine	brea	K 37.9								
_		7							İ	T		1	. 59.0	,
615.7		\exists						-	-	Pull		epci	1 77.7	
										From	59.	0 to	64.	
i	60 _		Mad	hine	brea	k 60.0) '			Run 5				
		7					_			C.L.)		
		7						100		Time			3 0	
		\exists												
		_												
i	62 —	⇉												
		7												
	-]	Ma.	chine	brea	k 63.1	'							
		3												
610.7	64 -	#							_			depti	1 64 0	,
}		7						}	1, 0	Puli From	14 64	. 0 ta	. 69 N	
}		7)	64.8	Run	5.0		0).0	
1		\exists								Rec S	0.0	•		
	66 -	_							Box	C.L. Time	0.	U 4∩-1	- 51	
	66 -	_	1					100	7	111116		00-2		
		=					c-97				9	min	ute do	
]	-	4					-						ck dri proble	
		=	Ma	china	o hres	ak 67.	7 '	{		LIG	- 11 B	*#E]	hronie.	141 5
606.7	68 _]_	- Ma						.		_			
		7												
1	1	4	Co	ntin	ued or	shee	t #5			}				

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DRILYNG	LOG (Cont 5	heet) ELEVATION TOP OF HOU	74.7			Hole No.	3 0 D	4
PROJECT				INSTALLATION Hartw	a 1 1 7 s	ka		SHEET D	į
Clemso	n Upp	er Di	version Dam			BOX OR	RE	MARKS	_
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description		RECOV-	SAMPLE NO.	(Drilling time, weathering, et	water loss, depth of tc., if significant)	
60647	6 8ь	С	d		e	f	D-11 1/	(Continued	<u>_</u>
	=		Concrete (Con	tinued					,
(05.7] =]			epth 69.0'	
605.7	-						Pull 15	0 to 74.0	
	=	1					Run 5.0	0 00 74.0	
	70 -	{				Box 7	Rec 5.0		
	=				100		C.L. 0.0		
	_	}			100		Time 2:1	6-2:36	
		}							
	_	1			\				
	72 -	‡							
		†							
1	-	1							
ı	=	1							
600.7	74]				4		iepth 74.0'	
	1/4	-					Pull 16	.0 to 79.0	
İ	1	1					Run 5.0	, 0 20 77.0	
i	-	1			98		Rec 4.9		
		‡				75.7	C.L. 0.		
	76 -	‡	Machine break	76 3'			Time 9:	rill water	
}	-	 	Loose aggrega		Ì			hange from	
<u> </u>		7	bentonite int	rusion			gray to	tan at der) (
{		3	zone 76.3'-79	3.7 ']	78.0'		
		3				į			
ļ	78 —	#							
		=		-			Tana	depth 78.9	,
595.7		7				-	Pull 17		_
		╡					From 79	.0 to 80.7	
}		7					Run 1.7		
1	80 —]	Machine breat Concrete pan				Rec 1.8		
Ì]	dike interfa		106	80.7	Time 9:	41-9:45	
}	_	Ⅎ	deep) 80.2'-		_/\	}		rill water	
		コ	Bottom of co	ncrete 80.	71		tan to	hange from gray at de	ם .
1	82 -	#	Bottom of ho	le 80.7']]		80 '	87	
		\exists					Tape	depth 80.6	'
		7						20 84	
	-	\exists						1-20-84 wat fter drill	
							ing 12.	5'	
	-	\exists					6-21-84	water Tev	e
	}	_					at 24hr	s. not ible due to	
1	_	_				1		vater overf	
		_		- 4				1e #30E	
-		#		C-98					
	-	7							
1	1					i			

							Hole No	• 30E
Deut	LING L		VISION	INSTAL				SHEET 1
1. PROJECT			South Atlantic		rtwell			OF 5 SHEETS
	on II	nnar D	oiversion Dam		AND TYP		HQ Diamon	<u>d</u>
2. LOCATION	(Coords	nates or Sta	etion)	┥ .				-
STA.	9+53				SL	R'S DESI	GNATION OF DRILL	
3. DRILLING	AGENC'	<u>Y</u>		7 c	ME 55			
Froeh	ling	and R	lobertson	13. TOT	AL NO. OF DEN SAMP	OVER-	DISTURBED	UNDISTURBED
end file nu	ent ec	WIT ON CLUM	3 0 E	- 80K	DEN SAMP	LES TAKE	H .	
S. NAME OF	DRILLE	 -			AL NUMBE			
Tommy	Burn	nette		IS. ELE	VATION GE	ROUND WA	TER Not mea	surable
6. DIRECTIO				16 047	E HOLE	STA	RTED I	OMPLETED
X VERTI	CAL [INCLINE	DEG. FROM VERT.				20-84	6-21-84
7. THICKNES	S OF OV	ERBURDE	N	17. ELE	VATION TO	P OF HO	LE 674.7	
				18. TOT	AL CORE	RECOVER	Y FOR BORING	100 %
			· · · · · · · · · · · · · · · · · · ·	7	ATURE OF			
9. TOTAL DE	EPTH OF	HOLE	69.0		ncy Re		(Engineer)
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA (Description)	ALS	RECOV-	BOX OR	REM.	ARKS iter lose, depth of
6740.7	Оь	}	4		ERY	NO.	weathering, etc	, it significant
		4	Concrete		1		Pu11 1	'
ļ] =	∃	Segregate aggregat	e		-	From 0.0	to 4.0
	-	-	zone 0.7'-2.2'	-			Run 4.0	
	-	7			92	Box	1	E
	=	7			-	1	C.L. 0.3	E
	2	Ⅎ	W1			ļ	Time 1:04	-1:14 F
	_	 	Machine break 2.2'				Note: 100	% return
] =	7					drill wat	er-gray
		₫			1	ĺ	color	j ,
	_					1		F
	[-	7					Tape de	pth 3.7'
670.7	4	1					Pull 2	
	-		Machine break 4.3'		}]	From 4.0	to 9.0
	_	1				İ	Run 5.0	F
		-}					Rec 5.0	ļ
	=]			100		C.L. 0.0	<u>.</u>
	_	‡					Time 1:22	
	6 —		Machine break 6.2'				1	nged from
	-		Poorly cemented ag			:	Longyear	
	-	7	gate (0-3/4" deep)	6.0	j	}	bottom di	
			6.2'-13.8'				bit at de	ptn 4.0'
	-	1	Machine break 7.2'		1			F
	8		Machine break 7.9' Machine break 8.2'					F
		7	Machine break 8.2'					
	_	7					l Lane de	pth 8.7'
665.7		#					Pull 3 \ _	
	_	1]	From 9.0	to 14.0
	=	4					Run 5.0	
	10 -	-	Machine break 10.0	*			Rec 5.1	Ł
	_	1			102		C.L. 0.0	F
	-	_]	10.7	Time 1:40	-1:55
		-						E
	_	7				Box		<u> </u>
	-	1]	2		F
	12 —	-						
-	_	4						E
	=	1	Machine break 12.9	•				F
		1						
	=	-		C-99				E
660 7	1, -]	-		1		m · ·	., ,, <u>.</u> E
660.7	14	†			J	├ 	_Tape de	epth 13.8'
	_	_						_
ı İ	_	1	Continued on sheet	# 2	i	,		-

RILLING	LOG (Cont S	ineet) ELEVATION TOP OF HOLE 674.7			Hole No. 30E
OJECT			INSTALLATION			SHEET 2
Clems	on Up	per D	iversion Dam Hartwel		BOX OR	OF 5 SHEETS REMARKS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOV- ERY	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
60.7	146	c	d	•	f	<u> </u>
	=		Poorly cemented aggre-			Pull 4
			gate zone (0-3/8" deep)		Box	From 14.0 to 19.0
			Machine break 15.1'		2	Run 5.0 Rec 5.1
	Ξ				1	C.L. 0.0
	16			102]	Time 2:00-2:16
	=		Concrete (Continued)			
,	_				1	
,]] ;	
				}		
	18 -		Machine break 18.0'			
	=======================================	1				
555.7	_	j				Tape depth 18.9'
/					†	Pull 5
	=	 		1		From 19.0 to 24.0
	20 -	1				Run 5.0
	=	1		98		Rec 4.9 C.L. 0. 1
	=	1	İ	70		Time 2:22-2:42
		 	Machine break 21.1'			
	[=	1			21.6	
	22 —	1	<u>!</u>			
		<u> </u>	Machine break 22.3'		1	
	=	1	; 1		Box	
	! -	†		1	3	
	! =	 	i			
650.7	24 —			-		Tape depth 23.8'
	-	1	Washing 1 ale 27 61	1		Pull 6
	=	 -	Machine break 24.6'		!	From 24.0 to 29.0
	-		Machine break 25.3'		İ	Run 5.0 Rec 5.1
	=					C.L. 0.0
	26 —	‡		102		Time 9:19-9:42
		 	Machine break 26.2'			
		‡				
	_	1		ŀ	İ	
	=	<u> </u>	Machine break 27.6!		l	
	28 —		Machine break 27.9' Machine break 28.1' Machine break 28.3'			
			Machine break 28:3' + Machine break 28.5'			
645.7	-	1	Hachine break 20.5	İ		Tape depth 28.9'
ŋ4J./	-	‡			 	Pull 7
	-	†				From 29.0 to 34.0
	30 —	1		1		Run 5.0
) =	_	}	104		Rec 5.2 C.L. 0.0
	-	_		1 04		Time 9:55-10:15
		-	Machine break 31.3'		j	1 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
	į -		C-100			
61.2 7	33] _				
642.7	32]			1	
	. –	7	I .	1	1	I

• !

	LOG	(Cont S	iheet) ELEVATION TOP OF HOLE 674.7			Hole No. 30E
ROJECT	- 11		INSTALLATION	11 1 -		SHEET 3
Clemso	n Upp	er Di	version Dam Hartwe		BOX OR	of 5 sheets REMARKS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOV- ERY		(Drilling time, water loss, depth of weathering, etc., if significant)
42.7	32ь	c	d	e	f	g
] =		Machine break 32.0'		32.6	Pull 7 (Continued)
			Machine break 32.9'			
	=		Concrete (Continued)			
40.7], =		(30.11.1.2.2)			Tape depth 34.0'
40.7	34 —				Вох	Pull 8
					4	From 34.0 to 39.0
	-					Run 5.0 Rec 5.0
	=					C.L. 0.0
	36 —			100		Time 10:24-10:41
			Machine break 36.7'			
•	=					
	38 —					
35.7	=					Tape depth 39.0'
J J • /	-				†	Pull 9
						From 39.0 to 44.0 Run 5.0
:	40 —					Rec 4.8
						C.L. 0.2
			Poorly cemented aggre-	96		Time 10:44-11:06
			gate zone (0-3/4" deep)	1		
	42 -		41.3'-42.7'			
			`Machine break 41.9'			
			F			
			- Machine break 43.4'		43.4	
2.2.			Machine break 45.4			Tape depth 43.8'
30.7	44			 	1 F	Pull 10
			Machine break 44.6' Machine break 44.9'		Box	From 44.0 to 49.0
			Machine break 44.9 Machine break 45.3'	ļ	5	Run 5.0 Rec 5.2
			Machine break 45.7'	104		C.L. 0.0
	46					Time 11:15-11:35
						Note: check drilling rig carburator for
			Machine break 46.9' Machine break 47.2'			malfuntion at depth
			Machine break 47.2			49.0'
	/, =		/ Machine break 48.0'		i	
	48 —		Machine break 48.4'			
			•		-	Tape depth 49.0'
525.7			2 44		 	Pull II
	=		C-101			From 49.0 to 54.0
24.7	50 -			_		
				1	1 1	

RILLING	LOG (Cont S	heet) ELEVATION TOP OF HOLE	674.7			Hole No.	30E
OJECT				INSTALLATION	1 7 - 1- 0			SHEET 4
Clemso	n Upp	er Di	version Dam	Hartwe:	% CORE		RE	MARKS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description		RECOV-	SAMPLE NO.	(Drilling time.	water loss, depth of ic., if significant)
2427	50ь	С	d			f		<u>g</u>
	! =			. ,				(Continued)
'	=		Concrete (Cont	inued)		ļ	Run 5.0	
							Rec 4.9 C.L. 0.1	
	_				98	Box	Time II:	44-12:01
	-					5	Time i.	, , 22.
	52 —				<u> </u>			
	=							
						}		
	_		Machine break	53.3'				
	=	}				54.0	Tane	epth 53.9'
20.7	54	1				34.0	Pull 12	<u> </u>
	-	1			-		From 54.	0 to 59.0
		1		-			Run 5.0	
	-	1				Box	Rec 5.0	
	i -	1			100	6	C.L. 0.0)
	= =					1	Time 12:	45-1:01
	56	1		c		}		
		 	Machine break	30.3				
		1			1			
	_	1	1				:	
	_	-			1			
	58 —	7						
	-	7			{			
. 1 5 7	-	1					Tape	lepth 58.9'
515.7	_					7	Pull 13	
	! -	1				ļ		.0 to 54.0
	60 -	1					Run 5.0	
	100 -	7	Machine break	60 51			Rec 5.1	0
	-	}	Machine break	. 00.5	100	İ	C.L. O. Time I:	u na - 1 · 2 3
	_	1			102		Time 1.	00-1.23
	! -							
	-	₫				1	i I	
	62 -	₫				1		
	-	\exists						
		_					1	
	· -	7				į		
		7					Topo	depth 64.0'
610.7	64 -	7			ļ	-	Pull 14	<u></u>
		ゴ				64.7	1	.0 to 69.0
		7				04.7	Run 5.0	
	-						Rec 5.0	
		\exists			ł	Box	C.L. 0.	0
	66	7	Machine break	66.0'	100	7	Time 1:	30-1:50
	66 -	7	T		1		Note: d	rill water
	1	=	Machine break	c 66.8'	1	1	color	hange from
	_		-				68.0'	tan at dep
		7	Concrete pane		C-102	-	00.0	
		7	/ dike interfac	ce (0-½"				
606.7	68 -	7	deep) 67.5'-			 	+	
	l.	⊣	i .		1	ı	1	

DRILLING	LOG	(Cont S	heet) ELEVATION TOP OF HOLE	: 74.7			Hole No.	30E
PROJECT				INSTALLATION			11010 1.4.	SHEET 5
Clemso	n Upr	er Di	lversion Dam	Hartwell				OF 5 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF		% CORE	BOX OR	REA	NARKS vaser loss, depth of
		1	(Description) ~	ERY	NO.	weathering, etc	i., if significant)
60627	68ь	<u> </u>	d		c	f		<u>g</u>
	_		Concrete panel	l-earth		Box 7	Pull 14	(Continue
	_	/	dike interface deep)67.5'-69.	: (U−× <u>y</u> ∵ ∈!		69.0		1 60 6
605.7		/	Machine break	68 51/	 	09.0	Tape de	pth 69.0
	_		Machine break	00.3		1		
			Bottom of hole	69 n'		1	Note: 6-2	21-84
	70 —		Duccom of hore	2 07.0		}	water lev	
	_				1	İ	drilling	
)			
					1			
	_				•			
			1 †					
	-							
				• :	1	1		
	-]	6-25-84 v	
					ĺ	į	not measu	
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					ļ		adjacent	drill ho
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l		ł		1	1	1		

•							Hole No.	. 30F		
, April 1	INC LOC		VISION	INSTALL	ATION.			SHEET	1	
	LING LOG		South Atlantic		twell			o ₹ 5	SHEETS	
. PROJECT		_		10. SIZE	AND TYPE	OF BIT	HQ Diamond			
Clemso	on Uppe (Coordinates	r Di	lversion Dam	4 .		EVATION	SHOWN (TEM OF MS)	-)		
STA.		or sta		MS 12 MANI		B'S DEEL	SNATION OF DRILL			
DRILLING	AGENCY				E 55	.n = UE310	SHALLON OF DRILL			
			bertson			OVER-	DISTURBED	UNDIST	JRBED	
HOLE NO.	(As shown on	drawir	= ;	13. TOTAL NO. OF OVER- DISTURBED UNDISTURBED						
NAME OF			3 OF	14. TOT	AL NUMBE	R CORE B	OXES 7			
	Burnet	+ a		15. ELEY	VATION GR	OUND WA	TER 625.0 (24hrc	1	
	N OF HOLE			 		STA		OMPLETE		
KIVERTI	CAL MINC	LINED	DEG. FROM VERT.	16. DATI	EHOLE	6-	-21-84	6-25-8	8 4	
				17. ELE	VATION TO	P OF HOL	- € 675.0			
	S OF OVERB		·	18. TOT	AL CORE R	ECOVERY	FOR BORING	(98 9	
DEPTH DE	RILLED INTO	rcek	Concrete 72.:		ATURE OF					
. TOTAL DE	EPTH OF HOL	.E	74.1	Nan	cy Re	ctor	(Engineer)			
51 51/A710N	DEPTH LE	6545	CLASSIFICATION OF MATERIA		* CORE	BOY OF	REMA	ARKS		
]	(Description)		ERY	SAMPLE NO.	(Drilling time, we weethering, etc.	ter lose, de ., if eignific	pth of	
675 q 0	0 6	<u> </u>	<u> </u>		•	<u> </u>		<u> </u>		
	🗇	ļ	_ Segregated aggrega	te		[Pull I	,	2	
	-	1	zone 0.0'-0.4'				From 0.0	to 4.	Z	
			•				Run 4.2			
			_		95		Rec 4.0 C.L. 0.2			
			Concrete]		Time 2:56	5_3.05		
	2 —					Вох	Note: use		W 0 2 7	
	7	-			[1	diamond d		-	
	=	1	W1.]		стащони с		J I C	
			Machine break 3.0'							
	-		Poorly cemented an							
		ļ	segregated aggrega L zone 3.0'-4.0'	rre						
670.8	4	ŀ	_ zone 3.0 =4.0				Tape de	epth 4	<u>. 0 '</u>	
	1 =	Ì				!	Pull 2		_	
	7	}					From 4.2	to 9.	2	
	=				•		Run 5.0			
	📑	i			, , , ,		Rec 5.0			
], -				100		C.L. 0.0			
	6 =		Doomles		1		Time 3:09	٤١: د −و		
		1	Poorly cemented se		1					
			gated and loose ag		į					
			gate zone 6.6'-9.0	,						
	7									
	8 —]				
	" =] [
		1	Para 1		1					
665.8			Poorly cemented ag			9.21	Tape de	epth 9	.0'	
=		j	gate zone (0-3/8"	aeep)			Pull 3			
	🗇		9.0'-14.0'				From 9.2	to 14	. 1	
	10				1		Run 4.9			
	7		Machine break 10.4	, '			Rec 4.9			
		- }			100	Box	C.L. 0.1			
						2	Time 9:32			
		ł					Note: 100			
		İ	-		1		drill wat	•	-	
	12	j						loved:		
							jack up .			
	7	J		a 1511			first run	of d	ay t	
			,	C-104	1		4.9'			
661.0	14									
001.0	' " -									
		i		# 0	1					
	iI	, I	Continued on sheet	# 2	I	i 1.) Y			

	roe (Cont S	heet) ELEVATION TOP OF HOLE 675.0		·	Hole No.	30F
MOJECT Clemsor	Unne	r Div	ersion Dam Hartwell	Lake	<u> </u>		SHEET 2
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)		BOX OR SAMPLE NO.	(Drilling time,	AARKS water loss, depth of c., if significant)
661 <u>3.0</u> 660.9	146	c	Poorly cemented aggre-	e	•	\ D11 2 (g
000.9	16		gate zone (0-3/8" deep) 14.0'-23.3'	106	Box 2	Pull 3 (Tape d Pull 4 From 14. Run 5.0 Rec 5.3 C.L. 0.0 Time 9:4	epth 14. 1 to 19.
655.9	18 —					<u>Tape d</u> Pull 5	epth 19.
					19.7	From 19.	1 to 24.
	22 -			100	Box 3	Run 5.0 Rec 5.0 C.L. 0.0 Time 10:	
650.9	24 —		- Concrete (Continued)			Tane d	epth 24.
	26			98		Pull 6 From 24. Run 5.0 Rec 4.9 C.L. 0.1 Time 10:	l to 29.
	28 —		_ Machine break 28.0†				
645.9	30				30.5	Pull 7 From 29. Run 5.0 Rec 5.0 C.L. 0.0	
643.0	32		C-105	100	Box 4	Time 10:	33-10:44
] =		Continued on sheet #3				

DRILLING	LOG	(Cont S	heet) ELEVATION TOP OF HOU	675.0			Hole No. 30F
PROJECT				INSTALLATION			SHEET 3
Clemso	n Upp	per Di	version Dam		ell La		or 5 she
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF (Descripsion		% CORE RECOV- ERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depo weathering, etc., if significan
543.0	32ь	С	<u>d</u>		e	f	
	=		Concrete				Pull 7 (Continu
	=	1					
	_					Box	
640.9	34	1				4	Tape depth 34
	=						Pull 8
		}					From 34.1 to 39 Run 5.0
	_	<u> </u>	Machine break	35.41		[[Rec 5.0
	_		Dreak	JJ. 7	100		C.L. 0.0
	36 —	1					Time 10:49-11:0
		1					
		1					
	=	‡					
	-	1					
	38 —	-					
•	_	1				[
635.9		1					Tape depth 30
] =	7					Pull 9
	40 —	-					From 39.1 to 44
	40 =]					Run 5.0
		}			100		Rec 5.0 C.L. 0.0
		1				,,,,	Time 11:09-11:2
	-	1				41.4	
	42 _	1					
	_	1				Вох	
	=	1				5	
		1					
	_	7	Machine break	43 91			
630.9	44 —]		70.7]]	Tape depth 44
		-	Segregated agg				Pull 10
	_	-	zone 44.5'-52	.0'			From 44.1 to 49 Run 5.0
	-	1					Rec 5.2
	=	1	Machine break	46 0!			C.L. 0.0
	46 —		nachine break	40. 0	104		Time 11:36-11:5
	=	7]	
	-	3					
	-	-					
-	48 -	1					
		<u> </u>					
	-	1		<u>^</u>	1		
	_			C-106		; }	Tape depth 49
625.9	-	1					Pull 11 From 49.1 to 54
625.0	50 _	1					
			i .				

erilling	LOG	(Cont Si	heet)	ELEVATION TOP OF HOLE	675.0			Hole No.	30F
PROJECT		·			INSTALLATION				SHEET 4
Clemso	n Upj	per Di	vers	sion Dam	Hartwe	e11 Lai	ke		OF 5 SHEE
ELEVATION	DEPTH	LEGEND		CLASSIFICATION OF			BOX OR	REA (Drilling time, s	AARKS
		LEGEND		(Description)	ERY	NO.		c., if significant
62 54 0	50b	c		d		e	f		g
	_	1	Seg	regated agg	regate		Box	Pu11 11	(Contin
	=	1	ZOI	ne 44.5'-52	. 0 '		5	Run 5.0	
		1						Rec 5.0	
	=	1	Мас	chine break	51 6'	100	51.6	C.L. 0.0	
				onine break	J1.0			Time 12:	46-1:03
	52 —	<u> </u>	•						
	_	<u> </u>	Cor	ncrete (Cont	tinued)				
	_]		•	·				
		1					Вох		
	=	1					6		
620.9	54 -	<u> </u>						Tana d	epth 54
J_ J. J	_ +	-					1	Pull 12	<u>- C </u>
	=	1						From 54.	1 to 59
		1						Run 5.0	
	_	1						Rec 5.0	
	-	-						C.L. 0.0	
	56 -]				100		Time 1:1	0-1:25
	_	1							
	-	1							
		-							
	_]							
]							
	58 —	1							
	<u> </u>								
(15.0		1						Tape d	epth 59
615.9	-	1				-	† †	Pull 13	cpen J
	i -]						From 59.	1 to 6
	60 —	1						Run 5.0	
	-	1						Rec 5.0	
	_	1				100		C.L. 0.0	
	ļ -	-						Time 1:3	2-1:46
	-								
	-	1							
	62 —	╡					62.2		
	_	-							
		∃					Box		
		-				ĺ	7 BOX		
	_]					'		
610.9	64 —	7					<u> </u>	Tape d	epth 64
		1	_ Po	orly cement	ed aggre-] [Pull 14	
	-	_		te zone 64.			,	From 64.	1 to 69
	-	_		-اخ" deep)	•			Run 5.0	
	-	┥ │	\c1	ay bentonit	e seam			Rec 4.9	
	-	7	64	.9'		98		C.L. 0.1	2 2.07
	66 -	1 1						Time 1:5	
	=	-	Co	ncrete pane	l-earth			Note: dr color ch	
] =	<u> </u>		ke interfac		C-107		gray to	
	-	1		ep) 66.7'-7				at depth	
	-	‡ / [Ma	chine break	67.3'			at depth	27.0
607.0	68 —	1_/_				᠋ .			
00/-0									

	100	Cont S	ineet) ELEVATION TOP OF HOL	675.0			Hole No. 30F	
Clemso	n Upp	er Di	lversion Dam	INSTALLATION Hartw	ell La	ke		5 EETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF	MATERIALS		BOX OR	REMARKS (Drilling time, water loss, dep	oth of
60740	68 b	c	d		e e	NO.	weathering, etc., if significan	# <i>()</i>
	7		Concrete pane				Pull 14 (Contin	nue
605.9			dike interfac deep) 66.7'-7			Box		
			deep) 66.7'-7 - Machine break			7	Tape depth 68	3.8
	=		nachine bleak	09.2			Pull 15	, .
	70		Machine break	70 01			From 69.1 to 74 Run 5.0	+.1
ĺ	" ¬		Machine break				Rec 3.4	
	コ		Machine break		68		C.L. 1.6	
							Time 2:13-2:28	
			/Machine break	71.4'			Note: drill wat	ter
	=						color change fr	
	72 —		/Machine break	72.2'			light brown to	
	7		•				at depth 69.5';	
	\exists					1	brown at depth	7 0
	\neg	j						
	7	}						
600.9	74			_			Tape depth 73	3.9
	7						 	
	=	ļ	Bottom of hol	e 74.1'				
							Note: 6-25-84 w	
	\exists						level after dri	111
	76	1					48.0'	
-	76	}				ļ		
	7						6-26-84 water 1	l e v
						Ì	24hrs. after dr	
	7					1	ing 50.0'	
	7	!				-		
	ᆿ					}		
		1						
-								
	\exists					i		
	 	Ì				<u> </u>		
	7							
	コ							
	\exists	1				!		
		-						
	7							
	コ					!		
						j		
ĺ	\exists	}						
	\exists				1			
	\exists				C-108			
	#				10-108			
	\exists	1						
1	- 1	1						

								Hale No.	30G_	
DRILL	INC	: 1.0		IVISION	INSTALL				SHEET	_
1. PROJECT	-146		~	South Atlantic		rtwel:			1056	SHEETS
	יונ	li n r	Ser D	iversion Dam	10. SIZE	IND TYPE	EVATIO	HO Diamond	, 	
2. LOCATION	(C.	ard in	etee or St	ation)	мѕ	_	-		•	ŀ
STA. S							R'S DES	IGNATION OF DRILL		
				charteer		E 55				
4. HOLE NO.	(Ae	Ahow	n on dra-	obertson	13. TOT	AL NO. OF DEN SAMPI	OVER- LES TAK	DISTURBED	UNDIST	URBED
				3 0 G	ļ					
S. NAME OF						AL NUMBE		ATER		
Tommy	Bu	rne	ette		13. CLE	VATION G		625.4	(24hr	s.)
	_			D DEG. FROM VERT.	16. DAT	E HOLE	:		6-27-	
_3VER11	CAL	<u> </u>		DEC. PROM VERT.	17. ELE	VATION TO		DLE 674.7'	0-27-	-
7. THICKHES	S OF	OVE	RBURDE	:N				RY FOR BORING		1 3
8. DEPTH DE	HLL	E0 11	170 200	Concrete 81.7		ATURE OF			9	
S. TOTAL DE					_			(Engineer)		1
ELEVATION				CLASSIFICATION OF MATERIA	NLS	% CORE	BOX OR	REMA	RKS	
1				(Description)		ERY	SAMPLE NO.	(Drilling time, wet	er lose, de , if eignitic	epth of cant)
674•7	0	<u> </u>		d		•		 		
		=		Poorly cemented ag			Box	Pull 1		1
		_	1	gate (0-3/8" deep)			1	From 0.0	to 4.	3
}		_	ł	0.0'-2.0'			}	Run 4.3		ł
		=	1					Rec 4.2		1
	_	=				98	ł	C.L. 0.1		
}	2	_	i	 -				Time 10:4		
		_	1					Note: 100		
		_	1					drill wat	er-gr	ay
		_	1	Concrete		1		color		1
[ĺ		1			1	İ			
]		_		Machine break 3.8'						l l
670.4	4	_	1					Tape de	pth 4	. 3'
0,0.,	}	_	}			 	†	Pu11 2	p c	
		=						From 4.3	+ ~ 0	2
			<u> </u>			ļ		Run 5.0	10 9.	,
	Į	-	-]]	Rec 4.9		
İ		_				98	İ	C.L. 0.1		i i
	6	_	1	}		30	ļ		0.11.	0.7
		_		Machine break 6.7'	1			Time 11:0	0-11:	07
		_		That hille break o.,			1			i
	ł	_	1							-
1		_	1			1		}		
		=	1	1		1	}	1		
	8	_]		1		
		_	1							
		_	1	}			1			
665.4		_	1				1	Tape de	pth 9	2 1
]		_				 	1	Pull 3	P - 11 /	·
}		_	ļ					From 9.3	to 14	3
!	10)		}		1		Run 5.0	• -	
[-	ĺ	1		98	1	Rec 4.9		
Į .		=	1			90	, , ,	1		i
		_	1	1		1	11.1	Time 11:1	1-11.	20
			l							
		_				1	Par-			l
 	1 2	?-	1			1	Box	1		j
		_					2			l
		_		Machine break 12.9	9 '	C-109				
]	ļ	_		†		(-10g)	1			
<u> </u>		_				1	1	1		l
		_				1		1		1
660.7	14	-			_	 				
]		_		1		1	l	1		!
]		_		Continued on sheet	t #2		}			İ
•	•		•	•		•		•		•

RILLING	LOG (Cont S	heet) ELEVAT	ION TOP OF HOL	674.7			Hole No.	3 0 G
OJECT					INSTALLATION		•		SHEET 2
Clemso	n Upp	er Di	version			rell La	ske	DS	OF 6 SHEETS
ELEVATION	DEPTH	LEGEND	CLAS	SIFICATION OF		RECOV.	SAMPLE NO.	(Drilling time,	water loss, depth of tc., if significant)
60-7	1 4b	С		d	•	e	f.	•	g
00-7	1 -								Continued)
		į	Concr	ete (Con	tinued)			Pull 4	lepth 14.1'/
			· 				Вох		3 to 19.3
] =						2	Run 5.0	3 (0 1).3
	_	}						Rec 5.0	
	16 —	1						C.L. 0.0	
	=	1				100		Time 11:	24-11:34
		1					{		
	_	1							
	-	3					1		
	18 —	7	Machi	ne break	18.21				
		-	110 - 111	DIEGE					
	=	7							
555.4	-	7					- I		iepth 19.0'
	=	7	-					Pull 5	.3 to 24.3
	20 —	7						Run 5.0	,, 10 24.3
	=	1						Rec 5.0	
		1				100		C.L. 0.	
	i -	1				[21.5		:27-12:51
	-	1					41.0	MOLE. C	hanged bits
	22 -	 	Machi	ne breal	k 22.0'				h 19.3' to e drilling
] =	‡						time.	e driiting
		₫						cime.	
		_							
	-		Machi	ne breal	k 23.5		_		
	24	_					Box 3	_	1 . 1 2/ 01
650.4		3					-		depth 24.0'
	_	}					-	Pull 6	.3 to 29.3
	-	}					}	Run 5.0	
	-	7	ļ					Rec 5.2	
	26 -	3				104		C.L. 0.	0
	20-	₹.						Time 1:	
	-	7				İ			hanged bits h 24.3' to
	-	7							e drilling
	-	7						time.	5
	300	7							
	28 —							1	
		7							
645.4		7						Tape	depth 29.2'
J - J . 4		7					-	Pull /	
		=							.3 to 34.3
	30-	#						Run 5.0	
		⇉				100		Rec 5.0 C.L. 0.	
	1 _	Ⅎ			2 112	100	1	Time 1.	21-1:33
		Ⅎ	}		C-110				
		\exists							
642.7	32 -]	-	 			-		
		-		_	. "-				
		コ	Cont	inued on	sheet #3	i		J	

. !

	100	(Com 3	heet) ELEVATION TOP OF HOLE 674.7			Hole No. 30G
PROJECT COMPANY	n IInr	er Di	version Dam Hartw	ell L	ake	OF 6 SHEETS
ELEVATION	ОЕРТН	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
64247	3 2b	c	d	<u> </u>	32.3	
	=		Concrete (Continued)		32.3	Pull 7 (Continue
	=]				
	_		- Machine break 33.2'		Box	
] =				4	
640.4	34 —					Tape depth 34.
	=				1	Pull 8
	_					From 34.3 to 39.
] =					Run 5.0 Rec 4.9
	=	1		-]		C.L. 0.1
	36 —	1		98		Time 1:40-1:52
	<u> </u>]				
	-]				
	1 =	}				
	38 —		Machine break 37.9'			
	=	1				
] =	‡ 1		j		
635.4	-	1] [Tape depth 39.
	=			f		Pull 9 From 39.3 to 44.
	40-	j				Run 5.0
] =			İ	}	Rec 5.1
				}		C.L. 0.0 Time 1:57-2:10
	-			102		Time 1:57-2:10
	_ =	!		- 52		
	42 —]				
] =]			42.8	
	=			1	Box	
(20 1	44-	1			5	Tono done 1/
630.4	=	‡			 	Tape depth 44.
	=) 1	From 44.3 to 49.
	-]	Poorly cemented aggre-			Run 5.0
			gate (0-3/8" deep) - 45.0'-45.7'			Rec 5.0 C.L. 0.0
	46-			100		Time 2:15-2:28
	=	1]		
		‡		}		
	-		Machine break 47.5'		1 1	
	, , =]				
	48—]		}		
	_]			[[
		1	<i>a</i>		i 1	Tape depth 49.
	=	<u> </u>	C-111		1	Pull 11
624.7	50				-	
	=	1				
	- 1	1 [Continued on sheet #4		1 1	

,

	LOG	Cont S	heet) ELEVATION TOP OF HOLE 674.7			Hole No. 30G
ROJECT			INSTALLATION	ell L	ake	SHEET 4
			CLASSIFICATION OF MATERIALS	% CORE	BOX OR	REMARKS
ELEVATION	DEPTH	LEGEND	(Description)	RECOV- ERY	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
52447	5 Ob	c	d	- e	f	Pull 11 (Continued)
] =		Concrete (Continued)		1	From 49.3 to 54.3
						Run 5.0
					Box	Rec 5.0
	50 =			100	5	C.L. 0.0 Time 2:36-2:48
	52 —					
	=					
		,				
			-		53.7	
	54			•		
620.4					 	Tape depth 54.2
		ĺ				Pull 12 From 54.3 to 59.3
	-				Box	Run 5.0
					6	Rec 5.0
	56			100		C.L. 0.0 Time 9:09-9:25
				100		11mc 9.09 9.23
	58 —					
	: =					
615.4	. –]]	Tape depth 59.2'
						Pull 13 From 59.3 to 64.3
	60					Run 5.0
						Rec 5.0
	_			100		C.L. 0.0
	=			100		Time 9:39-9:52
	62 —					
			- Machine break 63.2'			
610.4	64 —				64.3	Tape depth 64.21
	_					Pull 14
					Box	From 64.3 to 69.3
	=				7	Run 5.0 Rec 5.2
	_ =)	C.L. 0.0
	66-			104		Time 9:58-10:13
			C-116	<u>-</u>		
	=					
	=					
606.7	68					
	-			ļ		
	1 -	t l	Continued on sheet #5	1	1 1	

	100	Cont 3	heet) ELEVATION TOP OF HOLE 674.7			Hole No. 30G
KOJECT		*****	INSTALLATION			SHEET 5
Clemso	n Upp	er Di	version Dam Hartwe			OF 6 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOV- ERY	SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
062,7	68b	С	d		f	
	_ =		Concrete (Continued)		B	Pull 14 (Continued
	\exists			ļ	Box 7	
05.4					'	Tape depth 69.4'
				}] [Pull 15
	70	. 1			i 1	From 69.3 to 74.3
				1		Run 5.0
			Machine break 70.7'	100		Rec 5.0
						C.L. 0.0
				1		Time 10:43-10:57
	_			-		Note: changed from bottom discharge t
	72 —	!	Machine break 72.1'			face discharge bit
	7)]	at depth 69.3'
	=		Machine break 73.0'	!		de depen oyes
			indentific break 73.0			
				İ		
	74					
00.4	' ⁻			<u> </u>	}	Tape depth 74.4'
						Pull 16
					75.1	From 74.3 to 79.3 Run 5.0
				}		Rec 5.0
				1		C.L. 0.0
1	76 —	1		100	Box	Time 11:04-11:17
	. 7				8	
•	コ					
			Machine break 77.3'		1	
1	78 —					
!	-			Ì		
				1		
595.4	_		Machine break 79.0'	ĺ	1	m 1 1 70 / 1
993.4				ļ	} }	Tape depth 79.4' Pull 17
,						From 79.3 to 84.3
· · · · · · · · · · · · · · · · · · ·	80 —	Î				Run 5.0
	_		Concrete panel-earth			Rec 2.3
	7	· /	dike interface (0-3/4"	46		C.L. 2.7
1		/	deep) 80.7'-81.7'		1	Time 11:24-11:35
;	\exists	, ,	Bottom of concrete 81.	7		Note: drill water
	82 —		•			color change from
	<u> </u>	Ì				gray to brown sand
	_					water at depth 83.
1						Tape depth 81.2' (before wash)
İ	7					(Jerure Wash)
590.4	84 —					Tape depth 84.2
		1			1 -	Pull 18
	7		C-11	3	1	From 84.3 to 89.3
İ	\neg	'	<u> </u>	-	1	Run 5.0
588.7	86 —	l				
	~ ~		···		1	
		l		1	1	

OJECT			Sheet) ELEVATION TOP OF HOU	674.7			Hole No.		
	on Upp	er D	iversion Dam	Hartwe	11 La:	ke		SHEET OF 5 SI	6
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF	MATERIALS	% CORE	BOX OR	(Drilling time, w	ARKS ater loss, de	oth of
88.7	866	c	d		ERY	NO.	weathering, etc.	. <i>1] significa</i> B	m:)
							Pull 18 (Conti	nued)
					0	B	Rec 0.0		
	=				0	Box 8	C.L. 5.0 Time 12:0	912.	1 5
		i					Note: una		
	88						retrieve	mater	ial
	7						left in b		
	7						pull 17- inner bar		
85.4						89.3	washed al		
ļ			Bottom of hole	89.3'			left in o		
	90 —						out of ba		
	コ	{					\drilling	for p	111 1
	_=				1		Tape de	n+h 0	2 0 1
		}					lahe de	hen o	7. ∪
) 		Ì					Note: 6-2	7-84 v	vater
	\exists	-				j	level aft		
)		ing 39.7'		
j	\exists	j				ĺ	6-28-84 w	ater 1	1 میرو ا
		į			(24 hrs. a		
!	\exists	1				Í	ing 49.3'	_ 3	•
	-				1	!			
:	\exists	ļ]				
		1			}	:			
1		į				ť			
	=======================================								
į	=					į			
i	=======================================								
	=			{		}			
ĺ	7	į			1	1			
į						1			
	ゴ			ļ	}]			
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	\exists	}							
	7				į.	1			
\$!	コ	1			ì				
!	\exists			}	}	ļ			
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	-7			ĺ	{				
	7			C- 114					,
	7				1				
}	\exists								
	\exists				1	}			i

Continued on sheet #2

Tape depth 13.5'

Pull 4

661.3

DRILLING	LOG	(Cont S	heet) ELEVATION TOP OF HOLE			Hole No. 30H
NOJECT .			INSTALLATION	11 7-1	k a	SHEET 2
Clemso	n Upp	er Di	version Dam Hartwe		BOX OR	REMARKS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOV-	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
66140	1 4ь	с	d	e	f	
			Poorly cemented aggre-			Pull 4 (Continued)
			gate zone (0-3/8" deep) 8.9'-17.7'	•	Box	From 13.7 to 18.7
			0.9 -17.7		2	Run 5.0 Rec 5.0
	=			100		C.L. 0.0
	16				!	Time 9:46-9:57
	=					Note: install new
	=					Longyear bit at
			Machine break 17.3'	1		depth 13.7'
	=					
	18		Concrete (Continued)			
] =					Tana Ja-41 10 E1
656.3	=				† -	Tape depth 18.5' Pull 5
						From 18.7 to 23.7
	=					Run 5.0
	20 —					Rec 5.2
	=			104		C.L. 0.0 Time 10:02-10:10
	_=					11me 10:02-10:10
					İ	
	} =				21.7	
	22	1				
	-					
					Box	
651 2	=				3	Tape depth 23.7'
651.3	1 2 =				+ +	Pull 6
	24					From 23.7 to 28.7
	=					Run 5.0
	-		Poorly cemented aggre- gate zone (0-3/8" deep)			Rec 4.8 C.L. 0.2
	=		25.0'-28.2'	96		Time 10:15-10:23
	26 —	}				
	20-					
	! =				1	
	==		Machine break 27.3'			
	28 —					
	=		 - 			
646.3	=				┥┢	Tape depth 28.5' Pull 7
	-					From 28.7 to 33.7
	=					Run 5.0
	30-	1	-			Rec 5.1
	=			100		C.L. 0.0 Time 10:27-10:36
	=		C-116	102	1	Time 10:2/-10:36
			C-11 6			
	=]				
643.0	32				 -	
] =]		1		
	=	}	Continued on sheet #3	1	1	

- - -

	. 100	(Cont 3	theet) ELEVATION TOP OF HOLE			Hole No. 30H
Clemso	n U n	er Di	version Dam Hartw	ell L	ake	SHEET 3 OF 5 SHEETS
			CLASSIFICATION OF MATERIALS	% CORE	BOX OR	REMARKS
ELEVATION	оертн 3 2ь	LEGEND	(Description)	RECOV- ERY	NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
4340	<u> </u>	С	<u>d</u>	e	- -	B. 11 7 /2
			Concrete (Continued)		32.5	Pull 7 (Continued)
			·			·
41.3						
141.3	34 —				Box	Tape depth 33.6' Pull 8
	34 -				4	From 33.7 to 38.7
	\exists					Run 5.0
				100		Rec 5.0 C.L. 0.0
				100		Time 10:45-10:56
	36 —					
	=					
į	=					
ĺ						
	38 —			1		
36.3						Tane denth 38.6'
		ļ				Pull 9
						From 38.7 to 43.7
	40	İ				Run 5.0 Rec 5.0
ļ						C.L. 0.0
	#	į		100		Time 11:01-11:13
	一	1		1		
	\exists		Machine break 41.8'	}		
	42					
	\exists]				
(21 2	\exists	1			43.3	
531.3	44			<u> </u>	-	Tape depth 43.6' Pull 10
	44 = =	į				From 43.7 to 48.7
j	\exists		Doomly commented as a	į	Box	Run 5.0
	-	}	Poorly cemented aggre- gate zone (0-3/4" deep)	[5	Rec 5.1
	\exists		45.0'-46.6'	102		C.L. 0.0 Time 11:19-11:31
ł	46		Machine break 45.9'	- 02		11.31
	\exists	}	_			
	=	ļ	-			
	\exists					
	=		_		1	
Ì	48 —	}-	Segregated aggregate zone 48.1'-49.3'		}	-
526.3	7		20ne 40.1 -49.3			Tape depth 48.7'
-	4		0.110		Γ	Pull II
ĺ	1	F	. C-117			From 48.7 to 53.7 Run 5.0
525.0	50					
,23.0						
i			Continued on sheet #4		1	

DRILLING	LOG	(Cont S	inet) ELEVATION TOP OF HOLE				Hole No. 30H
MOJECT ,				INSTALLATION	11 7 01		SHEET 4
Clemso	n Upp	er Di	version Dam	Hartwe		BOX OR	OF 5 SHEETS REMARKS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description		RECOV- ERY	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
254 0	505	С	d		<u>e</u>	f -	Pull 11 (Continued)
			Concrete (Cont	inued)	100	Вох	Rec 5.0
					100	5	C.L. 0.0
	_		Machine break	51.4'	!		Time 11:39-11:52
			Segregated agg				
	52		zone 51.4'-53.	. 1 '			
	=						
	_				ĺ		
521.3	_					53.7	Tape depth 53.7
	54					1	Pull 12
	=	}			}	Box	From 53.7 to 58.7
	=	}]	6	Run 5.0 Rec 5.0
		}			100		C.L. 0.0
	=						Time 12:29-12:37
	56	}					12:39-12:42
	_						Note: 2 minute down
	=]					time to move water hose and allow cran
		}			}		passage.
	=	}			ļ		£ 200-00.
	58	1	; 		(
516.3	} =]			1		Tape depth 58.7
010.3] =	1				† -	Pull 13
	-	1					From 58.7 to 63.7
	=	1			1	}	Run 5.0
	60	1	; 		!		Rec 4.9
	=	1					C.L. 0.1 Time 12:49-1:00
	=	1			98		Time 12.49-1.00
	-]					
	! -	1			ļ		
	62 —	1			1	1	
	=	1			1		
	=	1					
	-	1	Machine break	63.2'			
511.3] =	}	1 		<u></u>		Tape depth 63.6'
	64 —	}					Pull 14
	-	}				64.6	From 63.7 to 68.7
	=	 	Machine break	64.8'			Run 5.0 Rec 5.0
	-	}			!	Box	C.L. 0.0
	=	}			100	7	Time 1:07-1:19
	66-	1			1		
	=	}					
	=	1		C-118			
		1		50	}		
	=	1]	
607.0	68	 				↓ ↓	
	=	1			l	1	
	-	1	Continued on	sheet #5	Ì	1	

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PROJECT + INSTALLATION SHEET	DRILLING	LOG	(Cont Si	elevation top of Hou	75.0			Hole No. 3	ОН
### BEVANDON DEPTH UGENO CLASSPICATION OF MATERIALS (COMPANIES) 6074 0 68b c			<u> </u>						SHEET 5
### Achine break 77.0 Machine break 77.0 Machine break 77.0	Clemso	n Upj	per Di	version Dam	Hartwell				OF 5 SHEETS
607.4 0 68b c d d e f g Pull 14 (Con Tape depth Pull 15 From 68.7 to Run 5.0 Rec 5.1 C.L. 0.0 Time 1:49-2: Note: change bottom disch face dischar at depth 68. Machine break 72.5' Machine break 74.7' Machine break 77.0' Machine break 77.0' Machine break 77.9' Machine break 77.9' Machine break 77.9' Machine break 79.6' Concrete panel-earthen dike interface (0-1" deep) 79.9'-81.6' Bottom of concrete 81.6' Highly weathered graywhite gneiss, RQD=0% very poor rock quality 81.6'-83.7' Bottom of hole 83.7' Bottom of hole 83.7' Tape depth Pull 17 From 78.7 to Run 5.0 Rec 4.9 C.L. 0.8 Time 2:26-2: Note: drill color change gray to brow depth 83.0' Note: 7-2-84 Level 24hrs. drilling 47.	ELEVATION	Demo	150510				BOX OR		
Concrete (Continued)			LEGENU	•	·)		NO.		
Machine break 69.6' Machine break 71.6' Machine break 72.5' Machine break 72.5' Machine break 74.7' Machine break 77.0' Machine break 77.0' Machine break 77.9' Machine break 79.6' Concrete panel-earthen dike interface (0-1" deep) 79.9'-81.6' Bottom of concrete 81.6' Highly weathered gray-white gneiss, RQD=0% yery poor rock quality 81.6'-83.7' Bottom of hole 83.7' Bottom of hole 83.7' Machine break 69.6' Machine break 71.6' Concrete panel-earthen dike interface (0-1" deep) 79.9'-81.6' Bottom of concrete 81.6' Highly weathered gray-white gneiss, RQD=0% yery poor rock quality 81.6'-83.7' Bottom of hole 83.7' Bottom of hole 83.7' Bottom of hole 83.7' Bottom of hole 83.7' Bottom of hole 83.7' Tape depth Note: 7-2-84 level 24hrs. drilling 47.	0740	68ь	c			e	f		
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Machine break 69.6' Machine break 71.6' Machine break 71.6' Machine break 72.5' Machine break 74.7' Machine break 74.7' Machine break 77.0' Machine b	606.3	_	1			<u> </u>			epth 68
Machine break 69.6' Machine break 71.6' Machine break 71.6' Machine break 72.5' Machine break 72.5' Machine break 74.7' Machine break 74.7' Machine break 77.0' Machine break 77.0' Machine break 77.9' Machine break 77.9' Machine break 79.6' Concrete panel-earthen dike interface (0-1" deep) 79.9'-81.6' Bottom of concrete 81.6' Highly weathered gray white gneiss, RQD=0% very poor rock quality 81.6'-83.7' Bottom of hole 83.7' Machine break 69.6' Run 5.0 Rec 5.1 C.L. 0.1 Tape depth Pull 16 From 73.7 to Run 5.0 Rec 4.9 C.L. 0.1 Time 2:09-2: Note: 0.1 Note: 4.9 Col. 0.8 Time 2:26-2: Note: drill color change gray to brow depth 83.0' Machine break 79.6' Served 4.9 Col. 0.8 Time 2:26-2: Note: drill color change gray to brow depth 83.0' Machine break 79.6' Served 4.9 Col. 0.8 Tape depth Note: 7-2-84 Not		-	-]	'		
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Machine break 74.7' 76		74	1				Ī		
75.2' Rec 4.9 C.L. 0.1 Time 2:09-2: 80		=	1					From 73.	7 to 78
76		-		Machine break	74.7'			Run 5.0	
Machine break 77.0' Machine break 77.9' Machine break 79.6' Concrete panel-earthen dike interface (0-1" deep) 79.9'-81.6' Bottom of concrete 81.6' Highly weathered gray-white gneiss, RQD=0% very poor rock quality 81.6'-83.7' Bottom of hole 83.7' Bottom of hole 83.7' C.L. 0.1 Time 2:09-2: Tape depth Pull 17 From 78.7 to Run 5.0 Rec 4.2 C.L. 0.8 Time 2:26-2: Note: drill color change gray to brow depth 83.0' Note: 7-2-84 level 24hrs. drilling 47.		_	1				75 21		
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Machine break 77.0' Machine break 77.9' Tape depth Pull 17 From 78.7 to Run 5.0 Rec 4.2 C.L. 0.8 Time 2:26-2: Note: drill color change gray to brow depth 83.0' Rec 4.2		=	<u> </u>			98		Time 2:0	9-2:18
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Machine break 77.9' Machine break 79.6'		_	1	Machine break	77 0'				
Tape depth Pull 17 From 78.7 to Run 5.0 Rec 4.2 C.L. 0.8 Time 2:26-2: Note: drill color change gray to brow depth 83.0' Bottom of concrete 81.6' Highly weathered gray- white gneiss, RQD=0% very poor rock quality 81.6'-83.7' Bottom of hole 83.7' Bottom of hole 83.7'		-	}	nachine bicar	. ,,,,				
Tape depth Pull 17 From 78.7 to Run 5.0 Rec 4.2 C.L. 0.8 Time 2:26-2: Note: drill color change gray to brow depth 83.0' Bottom of concrete 81.6' Highly weathered gray- white gneiss, RQD=0% very poor rock quality 81.6'-83.7' Bottom of hole 83.7' Bottom of hole 83.7'		_	1			į			
Tape depth Pull 17 From 78.7 to Run 5.0 Rec 4.2 C.L. 0.8 Time 2:26-2: Note: drill color change gray to brow depth 83.0' Bottom of concrete 81.6' Highly weathered gray- white gneiss, RQD=0% very poor rock quality 81.6'-83.7' Bottom of hole 83.7' Bottom of hole 83.7'		78 -		Machine break	77.9'	}	1		
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## Machine break 79.6' 80	596.3	-	1					Tape d	epth 78
Bottom of concrete 81.6' Highly weathered gray- white gneiss, RQD=0% very poor rock quality 81.6'-83.7' Bottom of hole 83.7' Bottom of hole 83.7' Note: drill color change gray to brow depth 83.0' Note: 7-2-84 level 24hrs. drilling 47.			1				1 /	Pull 17	
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Bottom of concrete 81.6' Highly weathered gray- white gneiss, RQD=0% very poor rock quality 81.6'-83.7' Bottom of hole 83.7' Bottom of hole 83.7' Note: drill color change gray to brow depth 83.0' Note: 7-2-84 level 24hrs. drilling 47.		_					!		
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very poor rock quality 81.6'-83.7' 83.7		82 —	‡					F =	
81.6'-83.7' 84 —		-	d						
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Bottom of hole 83.7' level 24hrs. drilling 47.		84 _				_			
drilling 47.		-	<u> </u>	_					
T donth		=	-	Bottom of hol	e 83.7'				
$\begin{bmatrix} \exists & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 &$		-	7						
// - // /		1 =	1		- ···		[i	-	
		-	1		C-119				
		_	<u> </u>						
		-	7				}		

							поје не.	39	-
DRIL:	ING LO	re i	VISION	INSTALL				OF 3 SHEETS	١
1. PROJECT		S	outh Atlantic	Hart	well I	ake	HQ Diamond	OF 3 SHEETS	┨
	n IInn	er Di	version Dam	11. DAT	IM FOR EL	EVATION	SHOWN (TBM or MSL.		1
2. LOCATION	(Coordin	ates or St	wion)	MSL					
STA. 1						R'S DESIG	SNATION OF DRILL		
			bertson	CME		AVED-	DISTURBED	UNDISTURBED	1
4. HOLE NO.	(As show	n on draw	ing title	T'S BUR	AL NO. OF DEN SAMPI	LES TAKE	N	_	
S. NAME OF				14. TOT	AL NUMBE	R CORE B	OXES 4	<u> </u>	1
Tommy				IS. ELE	ATION GE	ROUND WA	TER 669.8 (2	24hrs.)	1
4. DIRECTION	N OF HOL	. E		14. DATI			RTED IC	MPLETED	1
X VERTIC	CAL 🔲	NCLINED	DEG. FROM VERT.					-13-84	4
7. THICKNES	S OF OVE	RBURDE	N		ATION TO		074.0		Į
8. DEPTH DR	ILLED IN	TO ROCK	Concrete 39.2		AL CORE P		Y FOR BORING	100 %	-
S. TOTAL DE				1			(Engineer)		
			CLASSIFICATION OF MATERIA				REMĀ	RKS	1
ELEVATION		LEGEND	(Description)		RECOV-	BOX OR SAMPLE NO.	(Drilling time, wat weathering, etc.,	er loss, depth of if significand	
8 - 674	0 b	<u> </u>	Pooly cemented agg	regar	•	'	D. 17 1		t
	_		and loose aggregat				Pull 1 From 0.0	to 4 2	F
	=]	zone 0.0'-1.1'	-			Run 4.2	LU 7.2	F
		1	†			Box	Rec 4.2		F
į	_	1	Concrete		100	1	C.L. 0.0		F
		1					Time 9:46		F
	2 =	1					Note: 100		F
							drill wat	er-gray	L
		1					color		
		ł							-
670.6	4	j				į i	T 1	- 4	F
6/0.6		ł			<u> </u>	-	Pull 2	pth 4.4'	F
	_						From 4.2	to 9.2	F
			Machine break 5.1'				Run 5.0		F
	_	}					Rec 5.0		F
	_ =	}					C.L. 0.0		F
	6 —	1			100		Time 10:0	1-10:08	F
,	_ =	1		-					F
		1							F
	=]	†						F
	8 —	1							F
	0	1							E
	=	1							E
665.6		1					Tonada	O 21	F
טינטט	_	1				1	Pull 3	oth 9.2'	七
	=	1					From 9.2	to 14.2	E
	10 —	1				}	Run 5.0	· • •	E
	_	1				10.8	Rec 4.9		F
		1			98	1.0.0	C.L. 0.1	10 10 10	F
	_	1				_	Time 10:	12-10:18	F
	_	1	Poorly cemented ag			Box 2			F
	1 2 —		gate zone (o-½" de 11.7'-18.5'	ep)		4			F
		}	Machine break 12.2	•					F
	=	}	Machine Dreak 12.2						F
		ļ		C-120)				F
		1							F
660.8	14								F
	=	1	Continued on sheet	# 2					F
	_	1		<u>-</u>					F
,	•	•	•		•	•	•		-

RILLING	LOG	(Cont S	heet) ELEVATION TOP OF	674.8		_	Hole No.	39
ROJECT		•		INSTALLATION	11 7 - 1			SHEET 2
Clemso	n Upp	er Di	lversion Dam	Hartwe		BOX OR	RE	OF 3 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION (Descri		RECOV- ERY			water loss, depth of ic., if significant)
6048	1 4ь	c	<u> </u>		e	f	-	g
60.6	=		Poorly cemen	nted agore-			Pull 3 (Continued)
	=			deep) 11.7'-		_	Pu11 4	
	_		18.5'			Box 2		2 to 19.2
	=		Machine bre	-1- 15 01		2	Run 5.0	
	16		machine bre	ak 15.9			Rec 5.1 C.L. 0.0	1
					102			25-10:32
	=				}			
	18							
	_	,	_			1		
55.6							Tane	epth 19.2
	=					1 -	Pull 5	CPCH 19.4
	_ =						From 19.	2 to 24.2
	20 —						Run 5.0	
	=						Rec 4.9 C.L. 0.1	
					98			37-10:45
] =					21.4'		
	_ =							
	22 —					Box		
	_				1	3		
	_				}			
	=				1			
50.6	24 —						Tane d	epth 24.1'
,					}	†	Pull 6	
	_			-			From 24.	2 to 29.2
							Run 5.0	
					104		Rec 5.2 C.L. 0.0)
	26-					1 1		49-10:57
					1	1		
			1		ł			
	=		Machine bre	ab 27 61	}			
	_ =		nachine bre	ak 27.0				
	28-	<u> </u>						
					,			
45.6						29.2'		epth 29.3'
						Box	Pull 7	2
	30		-			4	From 29. Run 5.0	2 to 34.2
					98		Rec 4.9	
				Λ 121			C.L. 0.1	
				C-121		1	Time 9:5	0-10:09
42.8	32	_			-	 	 -	
	=		Continued o	n sheet #3		}		
	-		}		1	}		

	LOG	Cont S	heet) ELEVATION TOP OF HOLE 674.8			Hole No. 39
Clemso	n Upp	er Di	version Dam Hartwe	- 11 La	ke	SHEET 3 OF 3 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
4248	32ь	c	<u>d</u>	e	f	8
	_		Concrete (Continued)		1 1	Pull 7 (Continued)
į	_			}	}	Note: 7 minute
			Machine break 33.3'		Box	downtime to refill water tank
	_		Concrete panel-earth	ŀ	4	water tank
, , , ,			dike interface (0-3/4"			m 1 1 2/ 2!
40.6	34 —	//	deep) 33.3'-39.2'		∮ }	Tape depth 34.2' Pull 8
				ļ	}	From 34.2 to 39.2
	_			ļ]]	Run 5.0
	_				}	Rec 5.1
	_		Machine break 36.0'	102))	C.L. 0.0
	36					Time 10:14-10:19 Note: 100% return
	=				}	drill water-gray
,						color then brown at
ı	=))	33.0- depth
!			_Machine break 37.8'		1 1	-
	38 —	1 /				
	_	1				
35.6					39.2	Tape depth 39.3'
33.0	_	 		 	39.2	Tape depen 33.3
	_	ł	Bottom of hole 39.2'	ļ		Note: 6-12-84 wates
	40-			}		level measured
	} =	}			1	after drilling 12.
	=					6-14-84 water level
	-	1				at 24hrs. 5,0'
	=	1				
	<u> </u>					
	=	‡				
	=	1	-			
	_	1				
	_	1				
		}		}		
		1				
	=	}		Ì		
	i —	}				
	=	7				
	} =	7				
	¦ -	‡				
	=	1				
	i	4				
	=	1				
		1				
		1				
	=	}				
		1				
	-	}				
		7				
	_	1	C-125		}	
	=	7			}	
	-	1	1		1 1	

							Hole No.	39A
neil I	ING LOG		VISION	INSTALL				SHEET 1
I. PROJECT	ואט בטט	<u> </u>	outh Atlantic		twell			OF 3 SHEETS
	_ 11	- D4	manadan Dam		AND TYPE		HO Diamond	
2. LOCATION	n uppe	ee or Sta	version Dam	MSL				´
STA. 1	. ,				JFACTURE	R'S DESIG	GNATION OF DRILL	
3. DRILLING				CME				
Froehl	ing an	id Ro	bertson	13. TOT	AL NO. OF	OVER-	DISTURBED	UNDISTURBED
and file nu	(As shown pubed)	on drawi	39A	BUR	DEN SAMP	LES TAKE	·* !	<u> </u>
S. NAME OF	DRILLER			14. TOT	AL NUMBE	R CORE	OXES 4	
Tommy	Burnet	:te		15. ELE	ATION GE	ROUND WA	TER 657.8 ((24hrs.)
6. DIRECTIO				16. DATI	EHOLE		; .	OMPLETED
ON VERTI	CAL IN	CLINED	DEG. FROM VERT.					5-13-84
7. THICKNES	S OF OVER	BURDE		17. ELE	VATION TO	P OF HO	LE 675.1	
			Concrete 39.1				Y FOR BORING	99 %
					ATURE OF			
9. TOTAL DE	PTH OF H	OCE	39.1				Engineer)	
ELEVATION	-	.EGEND	CLASSIFICATION OF MATERIA (Description)	LS	RECOV- ERY	BOX OR	REMA (Drilling time, wat	er loss, depth of
675.1	0 .	c	<u>d</u>		ERT .	NO.	weathering, etc.,	if eignificant
	-		Segregated aggrega	te			Pu11 1	
			zone 0.0-1.1'	-		1	From 0.0	to 4.2
			Machine break 0.7'		1	Box	Run 4.2	··- <u>-</u>
[7	ĺ			100	1	Rec 4.2	F
l I	7	ì			1		C.L. 0.0	F
]	2 —	ļ	Concrete		ļ	•		
1								E
	-	İ				i '		<u></u>
ļ .						Ì		
ł					1	1		<u> </u>
1					ļ]		Ŀ
670.9	4 —						Tape der	oth 4.2'
[1	Pu11 2	
1	1 7					1	From 4.2 t	co 9.1
					Ì		Run 4.9	E
ì							Rec 4.8	-
1	,				98		C.L. 0.1	E
	6 -				ļ		Time 11:52	
1					ł	}	Note: adju	
l						}	drilling	
}					ļ]	0.1'- Run changed	rengrn
}	\exists					1	Changed	F
	8 —							
			Poorly cemented ag		1	1	}	E
	=		gate (0-3/8" deep)		l	1	}	}-
666.0			8.5'-9.7'			1		oth 9.1'
}	\exists				}		Pull 3	
]	= 1				[(From 9.1 t	:0 14.1
•	10-	•	Machine break 10.4	•	ĺ	10.4	Run 5.0	F
į	一士		L machine break 10.4		1,00	10.4	Rec 5.1	F
ŀ					102	Вох	C.L. 0.0	F
ł	1 7)	2		<u> </u>
!	7					_		
	12	-			[!	{	F
1	14]				}	}	}	F
	7			1 121		1		<u> </u>
				C-123	}			E
]						-		F
					İ	1		F
661.1	14							<u> </u>
}				ie.	}	1	1	
1	コ		Continued on sheet	#2	1	1		F
•		1	•		•	•	•	—

RILLING	roe (Cont S	heet) ELEVATION TOP OF HOLE 675.1			Hole No. 39A
OFC			INSTALLATION	11 Take		SHEET 2
Clemso	n Upp	er Di	classification of materials	% CORE	BOX OR	REMARKS
ELEVATION	DEPTH	LEGEND	(Description)	RECOV- ERY	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
6141	1 4b	c	d	e	f	Pull 3 (Continued) /
	_		Concrete (Continued)	[Tape depth 14.1'
	~				Box	Pull 4
					2	From 14.1 to 19.1
					<u> </u>	Run 5.0
	16			100		Rec 5.0 C.L. 0.0
	\ =				{	Time 12:38-12:44
	_=	1				Note: 100% return
			Machine break 17.5'		}	drill water-gray
	18			-		
	-	}			}	
	-	}				m dE 10 11
56.0	-	1			+	Tape depth 19.1'
	-	1				From 19.1 to 24.1
	20	‡				Run 5.0
	=	1		100		Rec 5.0 C.L. 0.0
		1		100	91 1	Time 12:50-12:56
	-	7				1
]				
	22]	Machine break 22.4'		Box 3	
	-		Thachine break 22.4		, ,	
		=			}	
] -	7				
551.0]	=		Ì		Tape depth 24.1'
,,,,,	24 -]			-	Pull 6
				-	{	From 24.1 to 29.1
	_	_				Run 5.0 Rec 5.0
	26	7		100		C.L. 0.0
	26 -	7				Time 1:02-1:08
		3		}		
	_]				
		_	Machine break 27.6'			
	28 -	_				Ì
	28 -	7			İ	
		3			1	
646.0	_				-{	Tape depth 29.1 Pull 7
		_	1		Ì	From 29.1 to 34.1
	30 -		Machine break 30.0'			Run 5.0
		7		100		Rec 5.0 C.L. 0.0
		7		C-124	, }	Time 1:13-1:19
]	Machine break 31.3'	10-129		
	2.0]			32.1	
643.1	32 _	┧			72/-	
	1	_	Continued on sheet #3	1	ı	i

DRILLÍNG	LOG	Cont S	heet) ELEVATION TOP OF HOLE 675.1			Hole No. 39A
ROJECT			INSTALLATION	1 7 ~ 1-		SHEET 3
Clemso	n Upp	er Di	version Dam Hartwel		BOX OR	REMARKS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOV-	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
643.1	32ь	c	d	<u> </u>	f -	Pull 7 (Continued)
	=		Concrete (Continued)		Вох	Pull / (Continued)
	=				4	
) =					
641.0	34	1			4	Tape depth 34.1'
	=	1			1	Pull 8 From 34.1 to 39.1
	=	1				Run 5.0
	\ <u>-</u>	1				Rec 4.8
	=	 	Machine break 35.5'	İ		C.L. 0.2
	36 _	1		1		Time 1:26-1:32
		}				Note: 100% return drill water-gray
	-		Machine break 36.7'			color then brown at
	-	1 /	Concrete panel-earth dike interface (0-3/4"			36.0' depth
	-	1 /	dike interface (0-3/4 deep) 36.8'-39.1'			-
	38 _	}	Machine break 37.8'	}		
1] /				
	-] /		Ì		m 1
636.0	-]	<u> </u>			Tape depth 39.0'
		∃	Bottom of hole 39.1'			Note: 6-13-84 water
	40 -		Boccom of more of	;		level at end of
]]		1)	drilling 27.5'
		\exists		İ		6-14-84 water level at 24hrs. 17.3'
	;				İ	at 24nrs. 17.3
}		\exists	1	1	į. Į	1
1		\exists	1	1		
1	Ţ -					
}				i		
	_	\exists				
}		7		!	}	
1		3		1		
1	_			ļ	Í	
		7		1		
		7		i	į	
1	_	\exists		-		
)		\exists				
1						
}		コ		1		
1	-				İ	
1						
	_				ł	
		\exists	C-12	5		
		\exists				
	-	-				
		\exists		l	(
l		1		ļ	1	I

					_		Hole No.	3 9 B
	1316 1 6	01	VISION	INSTALL				SHEET 1
	LING LO	S	outh Atlantic		twell			OF 4 SHEETS
1. PROJECT		•					HQ Diamond	
Clemson	. Uрре	r Div	ersion Dam	TI. DATE	M FOR EL	EVATION	SHOWN (TBM or MSL	,
2. LOCATION	,	elee or Sta	ition)	MS	<u> </u>			
STA. 12	+11			4		R'S DESIG	SNATION OF DRILL	
Froehli			artcar	CME				
4. HOLE NO.				13. TOT/	L NO. OF	OVER-	DISTURBED	UNDISTURBED
and lile nu	mb es	i on cessi	39B				··· <u>i </u>	
S. NAME OF	DRILLER				L NUMBE			
Tommy B	Burnet	te		15. ELE\	ATION GF	ROUND WA	TER 654.6 (2	4hrs.)
6. DIRECTIO						STA	RTED C	OMPLETED
DIVERTI	CAL []	NCLINED	DEG. FROM VERT.	16. DATE	HOLE	6-	-13-84	6-14-84
				17. ELE	ATION TO	P OF HO	LE 675.1	
7. THICKNES				IS TOT	AL CORE E	ECOVER	Y FOR BORING	98 *
8. DEPTH DE	RILLED IN	TO CO	Concrete 57.5	<u> </u>	ATURE OF			90
9. TOTAL DE			59.5	Na	ncy Re	ector	(Engineer)	
			CLASSIFICATION OF MATERIA		% CORE	BOX OR	REMA	RKS
ELEVATION	DEPTH	LEGEND	(Description)		RECOV- ERY	SAMPLE NO.	(Drilling time, wat	er lose, depth of
675 e 1	0 b	c	d		•	f	9	
	_		Machine break 0.2'				Pull l	-
1] =		 Machine break 0.5' Segregated aggrega 			}	From 0.0	to 4.5
ł	-			се	}	}	Run 4.5	F
1	_		zone 0.0'-1.0'			1	Rec 4.3	
1	-		Poorly cemented ag		96	}	C.L. 0.2	-
!	=	'	gate zone (0"-½" d	leep)	, , ,	Box	Time 2:10	_2.21
1	2	!	1.0'-2.2'			1	Note: 100	
l .	=					1		
	-		Concrete			İ	drill wat	er-gray
1]						color	F
į	=					-		
	-							
1	4	'						
670 6	-					}	Tanada	pth 4.3'
670.6	=					1	Pull 2	D C (1 4 .)
ł	i -			1			1	
	_						From 4.5	to 3.5
ľ	=					}	Run 4.1	
	_	ł					Rec 4.3	<u></u>
[6 —				105	}	C.L. 0.0	
	-	<u> </u>	- Machine break 6.5'	_	105		Time 2:29	
	_					Ì		p malfunc-
		•					tion stop	rig with
	_	ł					.9' left	on 5' run 🗀
	=		}					<u> </u> -
1	8 —		Poorly cemented ag	. c r o -				—
666.5	-	}	gate zone (0"-3/8"		,		Tape de	pth 8.7'
1000.3	_	<u> </u>	8.6'-9.0'	deep	/	1	Pull 3	P 2 .: 0 . 7
l	<u> </u>	ł	-		100	1	From 8.6	to 9 5
665.6	=	1	Poorly cemented ag			1	Run 0.9	
}	-		gate zone (0"-½" d	leep)		1	Rec 0.9	7
1	10-]	9.5'-12.0'				C.L. 0.0	/ 🗀
1	=	1					Time 9:34	0.27
)	-	1				10.7	1 1	, ,
Į.		1					Tape de	pen 4.5
1	-					Box	Pull 4	F
	=	1				2	From 9.5	to 14.5
	12-				96		Run 5.0	F
	1 4					ŀ	Rec 4.8	
Ĭ						1	C.L. 0.2	⊢
	-	ł		2-126			Time 9:41	-9:48
1	1 -	1		- 1LW		1	1	-
1	-	ŧ						
1	[=	1					1	 -
661.1	14	 			<u> </u>	-		
	=	1	Continued on sheet	- #2				
}	1 =	1	Jone Finded on Sheet	- 17 - €]	1	<u> </u> -
•	1	1	ı		-	•	1	-

	rog	(Cont S	heet) ELEVATION TOP OF HOLE				Hole No.	39B
Clamed	n IInr	ar Di	version Dam	INSTALLATION	Hartwe	ell La	ke	SHEET 2
			CLASSIFICATION OF		% CORE	BOX OR	REM	ARKS
ELEVATION	DEPTH	LEGEND	(Description		RECOV- ERY	SAMPLE NO.		easer loss, depth of, if significant)
6111	1 46	<u> </u>	d		<u>e</u>	f		<u> </u>
60.6	=		Poorly cemente gate zone (0"-			<u> </u>		Continued)
	_		14.0'-24.7'	··· accp	1	1	Pull:5	epth 14.3'
						{	From 14.5	i to 19.5
	_					1	Run 5.0	
	16 —				Ì	Box	Rec 5.1	
	_				102	2	C.L. 0.0 Time 9:53	L_10:00
	_					1	Note: 100	
		1	` !				drill wat	
	_		Machine break	17.7'		1	color	
	18 —					1		
	_							
55.6			<u>'</u> 				Tape de	epth 19.4'
		Í				1 1	Pull 6	F
	20 -			20 / 1		1	From 19.5	to 24.5
	_		Machine break	20.4			Run 5.0	
					İ		Rec 5.1 C.L. 0.0	
	_				100	21.3	Time 10:0	03-10:11
	_	†	:		102	1		
	22		!		İ			
	_		:					
		<u> </u>			1	i		
	_		Machine break	23.61	1	1		
	_				1 1	1		
	24						Tana da	2/ 5!
50.6	=			-			Pull 7	epth 24.5'
					}	Box		to 29.5
						3	Run 5.0	
	26] }	Rec 4.8 C.L. 0.2	
					96	}	Time 10:1	6-10:25
			Machine break	26.7'		1		
		,	Poorly cemente gate zone ()".	ed aggre- -3/8" deen	3			
	-		26.4'-27.1'	3,0 deep		}		
	28 —					}		
	_					{		
						1 1		
45.6						}	Tane de	epth 29.3'
	- =					1	Pull 8	<u>.p.u 7. J</u>
	30 -							5 to 34.5
	_				104	1	Run 5.0 Rec 5.2	
	_			a	104	}	Rec 3.2 C.L. 0.0	
				C-127		1	Time 10:3	35-10:45
42 1	22 -					31.9		
43.1	32 —				 	1		
	_	1	Continued on		1	t l		

RILLING	LOG (Cont S	heet) ELEVATION TOP OF HOLE 675.1			Hole No. 39B
ROJECT			INSTALLATION			SHEET 3
Clemso	n Upp	er Di	version Dam Hartwel.	Lake	BOX OR	REMARKS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOV- ERY	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significan:)
643 4 1	3 2ь	c	d	•	f	Pull 8 (Continued)
		<u> </u>	Concrete (Continued)	}		Pull 8 (Continued)
	_	{		}		
	_	!	Machine break 33.4'		Box	
	-	1			4	!
	34 —	<u> </u>		1		m
640.6	} =	}			-{	Tape depth 34.5'
] =]				Pull 9 From 34.5 to 39.5
		1		1		Run 5.0
		1	!			Rec 5.0
	26 -	<u> </u>		1		C.L. 0.0
	36 -	4		100		Time 10:53-11:01
	į =	1)
	-	7	1			
] =	#				1
	-	i	Machine break 37.8'			
	38 —	-		!		
	-	7	İ	1		
] -	7	Machine break 39.0'	ļ		
						Tape depth 39.5'
635.6	: -	-1 	1		-	Pull 10
	40 -	<u> </u>	1	ļ	}	From 39.5 to 44.5
	, 40	- i		į		Run 5.0
	,					Rec 4.8
·		=		į		C.L. 0.2
				96	1	Time 11:09-11:19
		- -				!
	42 -	- -		j	1,20	•
		ゴ	-		42.6	<u>) </u>
}	_	~-¦ i	Machine break 43.2'	1	70	
			Hactific break 13.2		Box 5	İ
[_		i i		
	44 _	<u>-</u>	Machine break 44.2' Machine break 44.4	į		m - d - m - // 21
630.6	i		Machine break 44.4		_	Tape depth 44.3' Pull 11
}	1	コ		}		From 44.5 to 49.5
	_			j	F I	Run 5.0
	!	\exists	:	i	1	Rec 5.1
	46-			102	i	c.L. 0.0
Ì	1	_		1		Time 11:26-11:36
	1	1				: 1
	_			}		
}	:	7	Machine break 47.7'	į		l :
1	i i	1	- nachine break 3/.,			
	48 -	コ		į :	1	
		7				
}	1		C-128		i	
		7				Tape depth 49.4
525.6		7			7	
625.1	, 50 -	1		-		Pull 12
	ļ	7	3 3 4/.	1		
•	- !	4	Continued on sheet #4	1		

DRILLING	LOG	(Cont S	heet) ELEVATION TOP OF HOLE 675.1			Hole No. 39B
ROJECT Clemso	on Upr	er Di	version Dam Hartw	ell L	ake	SHEET 4 OF 4 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE	BOX OR	REMARKS (Drilling time, water loss, depth of
2541	5 Ob	c	d	ERY	NO.	weathering, etc., if significant)
	52		Concrete (Continued)	102	Box 5	Pull 12 (Continued) From 49.5 to 54.5 Run 5.0 Rec 5.1 C.L. 0.0 Time 11:43-11:54
			_Machine break 52.9'		52.9	Note: drill water color change from gray to brown at depth 54.0'
20.6	54 —	_	Concrete panel-earth dike interface (0"-2") 53.7'-57.5'		Box 6	Tape depth 54.5'
				80		Pull 13 From 54.5 to 59.5 Run 5.0 Rec 4.0
	56		Machine break 56.2'	80		C.L. 1.0 Time 12:42-12:53
	58 —		Dark brown silty sand with organics and wood chips 57.5'-59.5'			
15.6					59.5!	Tape depth 59.21
	60 -		Bottom of hole 59.5'			Note: 6-14-84 water level after drill-ing 16.5'
						6-15-84 water leve 24hrs. after drill ing 20.5'
				- Control of the cont		
			C-129			

							Hole No.	39C	
000	INC LO	~	VISION	INSTALL				SHEET 1	ļ
	ING LO	<u>~</u>	South Atlantic		artwel			OF 2 SHEETS	Į
1. PROJECT							HQ Diamond		1
Clemso 2. LOCATION	n Upp	er Di	version Dam	MSI			SHOWN (12M OF MSE)	']
STA. 1		ates of Sta	a lory			R'S DESIG	SNATION OF DRILL		ł
3. DRILLING	AGENCY			1	E 55				į
			bertson		AL NO. OF DEN SAMPL	OVER-	DISTURBED	UNDISTURBED	1
4. HOLE NO.	(As show whee)	n on drawi	ng title!	BURG	DEN SAMPL	ES TAKE	N	<u>:</u>	1
S. NAME OF	DRILLER		: 390		AL NUMBE				
Tommy				15. ELEV	VATION GR	OUND WA	TER 663-6 (2	(4hrs.)	İ
6. DIRECTIO	H OF HOL	. E		16. DATI	F HOLE		•	MPLETED	1
Ž VERT	CAL	NCLINED	DEG. FROM VERT.	16. 07.1		6	-14-84	6-14-84	1
7. THICKNES	- OF OVE	99118051	<u> </u>	17. ELE	VATION TO	P OF HO	LE 675.1]
							Y FOR BORING	94 🖘	1
			Concrete 14.6	7	ATURE OF				1
9. TOTAL DE	PTH OF	HOLE	14.6	Nat			(Engineer)		┨
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA (Description)	LS	T CORE	BOX OR	REMAI (Drilling time, wate	er loss, depth of	1
675.01	0 6	ا ء ا	d		ERY	NO.	weathering, etc.,	il eignilicant)	}
			Segregated aggregate	t e			Pull 1		F
	=		zone 0.0-0.6'			Box	From 0.0 t	0 4.6	E
]	_					1	Run 4.6	- ·•	H
			Concrete				Rec 4.5		F
	=	1			-		C.L. 0.1		
Ì	2	1			ł		Time 1:30-	1:43	L
	2				•		Note: 100%	return	F
	_				ĺ		drill wate	r, gray	F
]		1			98		color		匚
	_								E
ì	_	1							\vdash
	4 —				}				
670.5	_	1				j ,	Tape dep	th 4.6'	
0,3.3	_						Pull 2		世
•							From 4.6 ':	0 9.6	\vdash
	_		Machine break 5.5'				Run 5.0		F
	_	}					Rec 4.7		F
	6 -	1					C.L. 0.3		
	_	‡		-			Time 1:47-	.1:58	
		<u> </u>	Machine break 6.9'		94				\vdash
1	=								F
!	_] !							F
] .	8 —]							
j	_	1							
	_	1				ļ			-
		1			1				F
665.5	10	!	Concrete panel-ear	t h	}	}	Tape dep	th 9.3'	
	, , =	1 /	dike interface (0-	ī ''			Pull 3		$ \pm $
{	10-	1	deep) 9.6'-14.6'	_			From 9.6 t	0 14.6	\vdash
	=	1 /	Machine break 10.2	•			Run 5.0		\vdash
<u> </u>					90	11.0'			F
	_	 /	Machine break 11.3	•]		C.L. 0.5		F.
	=	1 /				Вох	Time 2:04-		
	12	1 /			{	2	Note: dril		F
	- =	1 /					color chan		F
	_	 -	Machine break 12.7		[gray to br		F
		 	Machine break 13.0	•	0-130]	12.0' dept	. n	
1	=		Machine break 13.5	•	1				
	_ =	1			ļ				
661.1	14-	 				-	 		F
(1		11.0	1	1			FI
1	=	}	Continued on sheet	# 2					

RILLING I	LOG (Coi	it Sh	eet) ELEVATION TOP OF HOLE				Hole No. 3	
DIECL				installation Hartwell	1 7 2 1		·—·	SHEET 2 OF 2 SHEETS
Clemson	<u> Upper</u>	Div	version Dam		* CORE	BOX OR	REMA	ARKS
LEVATION	DEPTH LEG	ND	CLASSIFICATION OF (Description	MATERIALS	RECOV- ERY	SAMPLE NO.	(Drilling time, we weathering, etc.	ater loss, depth of
6141 1	46	:	<u>d</u>		<u>e</u>	f		3 - * d = u o d \
	 /	_	Concrete panel	earth dike	}	Box	Pull 3 (Co	
60.5	74	 -\-	interface $(0-1)^{-1}$	deep)		2 \14.6	Tape dep	Fh 14.0
		14	9.6'-14.6'			14.0	. , ,	01
	\exists	١.		11 (1	l		Note: 6-14	-84 Water
	コ		Bottom of hole	14.6'		ļ	level afte	r drilling
				1		ļ	8.5'	• • • •
	\exists				-	1		
ļ	#							•
	-					ł		_
	\neg						6-15-84 wa	
1					(ļ	24hrs. aft	er drill-
	7						ing 11.5'	
-					ĺ			
	\dashv							
	7				1			
		1)	j	
i	\exists	-				i		
į	7	Ì			ĺ	1		
	7					1		
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i	7	i						
	\exists	ļ						
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<i>i</i>					1			
	=	}			1	1	1	
	4					i	1	
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1	\exists	}		•		Ì		
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		,						
	-		}					
				4.				
	-			C-131				
							}	

Hole No. 39D SHEET 1 INSTALLATION DIVISION DRILLING LOG OF 3 SHEETS Hartwell Lake South Atlantic 1. PROJECT 10. SIZE AND TYPE OF BIT HQ Diamond 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Clemson Upper Diversion Dam 2. LOCATION (Coordinates or Station) STA. 12+20 12. MANUFACTURER'S DESIGNATION OF DRILL 3. DRILLING AGENCY CME 55 Froehling and Robertson DISTURBED UNDISTURBED 13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 4. HOLE NO. (As shown on drawing title ed tile num 39D 14. TOTAL NUMBER CORE BOXES S. NAME OF DRILLER 15. ELEVATION GROUND WATER 660.1 (24hrs.) Tommy Burnette 6. DIRECTION OF HOLE STARTED COMPLETED 16. DATE HOLE 7-2-84 7-2-84 TVERTICAL [INCLINED] DEG. FROM VERT. 17. ELEVATION TOP OF HOLE 675.1 7. THICKNESS OF OVERBURDEN 18. TOTAL CORE RECOVERY FOR BORING 100 % a. DEPTH DRILLED INTO BOCK Concrete 34.3 19. SIGNATURE OF INSPECTOR 9. TOTAL DEPTH OF HOLE Nancy Rector (Engineer) S CORE BOX OR SAMPLE NO. CLASSIFICATION OF MATERIALS (Description) REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) ELEVATION DEPTH LEGEND 675.1 Segregated aggregate Pu11 1 zone 0.0'-1.0' Box From 0.0 to 4.3 1 Run 4.3 Concrete Rec 4.1 95 C.L. 0.2 Time 10:13-10:24 Note: 100% return Machine break 2.6' drill water-gray color Poorly cemented aggre-670.8 Tape depth 4.2' gate zone (0-3/8" deep) 4.1'-9.3' Machine break 4.9' Pull 2 From 4.3 to 9.3 Run 5.0 Rec 5.1 Machine break 5.9' C.L. 0.0 6 102 Time 10:28-10:37 Machine break 7.6' 8 Poorly cemented aggre-665.8 Tape depth 9.3' gate zone (0-1" deep) Pull 3 9.3'-14.0' From 9.3 to 14.3 10-Kun 5.0 Rec 4.9 Machine break 10.7' 10.7 C.L. 0.1 98 Time 10:42-10:51 Box 2 12 C-132 661.1 14-Continued on sheet #2

	LOG	Cont	ineet) ELEVATION TOP OF HOLE 675.1			Hole No. 39D
Clamer	n Hor	ar D	iversion Dam Hartwel	1 Lake		SHEET 2 OF 3 SHEETS
Стещьс) II OPI	JEL D		% CORE		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOV-	SAMPLE	(Drilling time, water loss, depth of weathering, etc., if significant)
61.1	14ь	c	d	ERY	NO. f	g
60.8	_		Machine break 14.0 Machine break 14.2'			Pull 3 (Continued)
	_					Tape depth 14.1 /
			Poorly cemented aggre- gate zone (0-½" deep)			Pull 4
			14.0'-15.3'			From 14.3 to 19.3
			Machine break 15.0'			Run 5.0
	16		Hacuine bleak 15.0	}		Rec 5.1
	-		Machine break 16.4'	102		C.L. 0.0
	=					Time 10:59-11:08
	_		Concrete (Continued)		Вох	
	_				2	İ
	_					
	18					
	=		Machine break 18.4'			1
	_					
.						
55.8	_					Tape depth 19.3'
						Pull 5
	20					From 19.3 to 24.3
	_	ļ				Run 5.0
	_			102		Rec 5.1
	i		<i>}</i>	102		C.L. 0.0 Time 11:14-11:22
			1			: IIme II:14-11:22
	22 -					
	22			ļ (
	_					
			_			i
			Machine break 23.2'	1 }		
	_	•				<u> </u>
	24					1
550.8						Tape depth 24.3'
	_	•				Pull 6
			Machine to all 25 11			From 24.3 to 29.3
	-		Machine break 25.1'			Run 5.0
	_					Rec 5.0
	26 -	1		100		C.L. 0.0
]		Machine break 26.3'		26.5	Time 11:28-11:39
	<u> </u>	ļ		•	20.2	i 1
	·	1		}		
	: <u> </u>	1 1			_	
	_		Washing basels 20 01	1 !	Box	1
	28 -		Machine break 28.0'		3	
	[1		
	!			1		
	·		 			Tape depth 29.31
545.8	_	}				Pull 7
	_					From 29.3 to 34.3
	30 -					Run 5.0
	_		Machine break 30.5'			Rec 5.0
	-			100		C.L. 0.0
					C-133	Time 11:44-11:55
	-		Machine break 31.7'	1 1	J	
543.1	32]]		
	1 /	· ——		4		
143.1				1 1		

DRILLING LOG (Cont Sheet) ELEVATION TOP OF HOLE 675.1 Hole No. 39D										
Clams	on Unr	ar Di	version Dam Hartwel	1 Tak	a	SHEET 3 OF 3 SHEETS				
			CLASSIFICATION OF MATERIALS	% CORE	BOX OR	REMARKS				
ELEVATION	DEPTH	LEGEND	(Description)	RECOV- ERY	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)				
4321	3 2ь	c	d Concrete (Continued)	e	f 32_2	B 11 7 (2)				
	=	1	Machine break 32.7'		37.7	Pull 7 (Continued) Note: drill water				
	=		Concrete panel-earthen		Box	color change from				
	=	7	dike interface (0-3/8"		4	gray to light brown				
	=	1 /	deep) 33.1'-34.3'			at depth 33.0'				
40.1	34		Machine break 33.9'		34.3	Tape depth 34.3'				
40.1			D		34.3	1250 205011 3.113				
	_	}	Bottom of hole 34.3'							
	_					Note: 7-2-84 water				
					}	level after drillin at 14.8'				
	36 —	1				at 14.0				
	_	}								
		1								
		‡			;					
	=	 				7-3-84 water level				
		4				24hrs after drilling				
		1		:		at 15.0'				
		‡								
	· <u> </u>			!						
	= =	1		‡ !						
	-	+		İ						
	: -	†			 					
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39E Hole No. SHEET INSTALLATION DIVISION DRILLING LCG OF 5 SHEETS South Atlantic <u> Hartwell Lake</u> PROJECT 10. SIZE AND TYPE OF BIT HO Diamond
11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Clemson Upper Diversion Dam LOCATION (Coordinates of Station) STA. 12+10 12. MANUFACTURER'S DESIGNATION OF DRILL DRILLING AGENCY CME 55 Froehling and Robertson DISTURBED 13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN UNDISTURBED 4. HOLE NO. (As shown on drawing title)
and tile mushed 39E 14. TOTAL NUMBER CORE BOXES NAME OF DRILLER IS. ELEVATION GROUND WATER 671.5' (24hrs) Tommy Burnette 6. DIRECTION OF HOLE STARTED COMPLETED 16. DATE HOLE 7-10-84 7-11-84 DEG FROM VERT. VERTICAL DINCLINED_ 17. ELEVATION TOP OF HOLE 675.0' 7. THICKNESS OF OVERBURDEN 18. TOTAL CORE RECOVERY FOR BORING 98.3 S. DEPTH DRILLED INTO BOCK CONCRETE 82.3' 19. SIGNATURE OF INSPECTOR 9. TOTAL DEPTH OF HOLE 83.7 Nancy Rector (Engineer) T CORE BOX OR SAMPLE NO. CLASSIFICATION OF MATERIALS (Description) ELEVATION DEPTH LEGEND (Drilling time, water loss, depth of weathering, etc., if significant) 67540 Pull 1 Segregated aggregate From 0.0 to 3.8 zone 0.0-0.6 Run 3.8 Concrete Box 1 Rec 3.9 Machine break 1.7' C.L. 0.0 103 Time 11:46-12:01 Note: 3 inch down Poorly cemented aggregate zone (0-1" deep) stream offset from 2.4'-11.8' centerline of panel Machine break 2.9' _671.2 Tape depth 3.9' Pull 2 From 3.8 to 8.8 Run 5.0 Machine break 4.9' Rec 4.8 96 C.L. 0.2 Time 12:37-12:46 Note: 100% return drill water-gray color - Machine break 7.5' -Machine break 8.6' 566.2 Tape depth 8.7' -Machine break 9.0° Pull 3 From 8.8 to 13.8 Run 5.0 102 Rec 5.1 C.L. 0.0 10.7 Time 12:51-1:02 Вох 2 C-135 661.2 Tape depth 13.8' Pull 4 -661.0 Continued on cheet #?

RILLING	LOG	(Cont S	heet) ELEVATION TOP OF HOLE 675.0			Hole No. 39E
ROJECT	son I	Inner	Diversion Dam Hart	well	Lake	SHEET 2
. Clem		pper	CLASSIFICATION OF MATERIALS	% CORE	BOX OR	REMARKS
ELEVATION	DEPTH	LEGEND	(Description)	RECOV- ERY	NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
61.0	14ь	c	(Canadanad)	e	f	B 11 / (Carabiana)
	=		- Concrete (Continued) Occasional aggregate			Pull 4 (Continued) From 13.8 to 18.8
	_		voids (0-3/8" deep)			Run 5.0
	_		14.2'-15.4'		Box	Rec 5.1
			Machine break 14.7'	102	2	C.L. 0.0
	16 —		Poorly cemented aggre- gate zone (0-3/8" deep)	 		Time 1:07-1:20
	=		15.6'-18.2'	į		
		<u> </u>	Machine break 16.6'			
	i =		- Machine break 17.2'			
	_		Machine break 17.9'			
	18 —		_			
556.2	_					Tape depth 18.9'
- · · -					i	Pull 5
	=		Poorly cemented aggre-			From 18.8 to 23.8
	20 —		-gata zone (0-½" deep) 19.7'-23.6'			Run 5.0 Rec 4.9
	20 =		Machine break 20.0'	98		C.L. 0.1
			Machine break 21.0'			Time 1:29-1:46
		-		! !		
	=	ļ	Machine break 21.5'	:	21.5	
	22	•		 	Box	
	! <u> </u>			Ì	3	
	=		Machine break 23.0'	! ! !		
	:			! !		
651.2	: =		<u></u>	· 		Tape depth 23.8'
	24 —	į		: !		Pull 6
	: -	ļ	- Machine break 24.4'			From 23.8 to 28.8 Run 5.0
		. .		; !		Rec 5.0
	_	<u> </u>		100		C.L. 0.0
	26			I		Time 1:54-2:08
	26 —	•				
			- Machine break 26.6'	ļ		
		!	Machine break 27.3'	[
	_		•			
	28 —	1	✓ Machine break 28.2'			
	=			į		lape depth 28.8'
646.2	_	1	: 			Pull /
		}		1		From 28.8 to 33.8
			Machine break 29.8'			Run 5.0
	30-	†		100	į	Rec 5.0 C.L. 0.0
	_	4		. 100	i	Time 2:18-2:32
	_	4		1	- C-136	
	=	 	Machine break 31.4'			
643.0	32	‡				
u43.U	1 72 -					
]	Continued on sheet #3		1	

	LOG	(Cont :	heet) ELEVATION TOP OF HOLE 675.0			Hole No. 39E
MOJECT		nar n	iversion Dam Ha	reno1	l Lake	SHEET 3
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS		BOX OR	REMARKS (Drilling time, water loss, depth of
6432.0	325		(Description)	ERY	NO.	weathering, etc., if significant;
J 4 J2. U	3 48	<u> </u>	d Concrete (Continued)	<u> </u>	 	Pull 7 (Continued)
	=		Machine break 32.5'		32.5	rair / (continued)
	_		Machine break 33.1'			
	=		Machine break 33.6'			
541.2	_	 	machine break 33.6		Box -	Tape depth 33.8'
	34 —	1			4	Pull 8 From 33.8 to 38.8
	=	1		1		Run 5.0
	_	†	_Machine break 35.2'	100		Rec 5.0
	=		Machine break 35.6'			C.L. 0.0
	36					Time 2:42-2:53
	70 —	}	Poorly cemented aggre-		1	
	-		gate (0-3/8" deep)			
			36.3'-40.0' Machine break 36.8'			
	=		Machine break 37.6'	1		
	38			1		
	=		Washing to 1 20 Cl			
636.2	=		_ Machine break 38.6'		1 1	Tape depth 38.8'
,	-					Pull 9
	=	 				From 38.8 to 43.8 Run 5.0
•	40		-			Rec 5.0
	!	1		100		C.L. 0.0
	=	1				Time 8:26-8:43
				!		
	42		Poorly cemented aggre-	İ		
;	: <u> </u>		gate zone (0-3/8" deep) 42.1'-43.1'			
!	·		72.1 -73.1			
	- =	•	_	!	43.3	
631.2	44				, ,	Tape depth 43.8'
	, , 4 —				Вох	Pull 10 From 43.8 to 48.8
				į	5	Run 5.0
	_		/ Machine break 45.2'	1		Rec 5.1
į				100		C.L. 0.0
; 	46		Machine break 45.9'	102		Time 8:49-9:01
İ	_	ĺ				
	=	 	_ Machine break 46.8'	1		
	· -					
	<u> </u>	1		k t		
	48 —	!	Machine break 48.1'		-	
	_	1	Machine break 48.6'	!		
626.2		+ . 			<u>.</u> t.	Tape depth 48.9'
	i -	1	C-137	1	1	From 48.8 to 53.8
	-			:		Run 5.0
625.0	50-	ļ ——			 	
	<u> </u>	t	Continued on sheet #4			

n Upp оертн 50ь	LEGEND		twell	Taka	SHEET 4									
	LEGEND	Clemson Upper Diversion Dam Hartwell Lake OF 5 SHEETS												
5 Сь		CLASSIFICATION OF MATERIALS (Description)	RECOV-	SAMPLE	REMARKS (Drilling time, water loss, depth of									
	с	d	ERY e	NO.	weathering, etc., if significant)									
52		Concrete (Continued)	100	Box 5	Pull 11 (Continued) Rec 5.0 C.L. 0.0 Time 9:09-9:22									
<u></u>		Machine break 52.9'												
				52 8	Tono donah 52 0!									
54 —				33.01	Tape depth 53.9' Pull 12									
			98	Box 6	From 53.8 to 58.8 Run 5.0 Rec 4.9 C.L. 0.1 Time 9:29-9:43									
56														
58 —														
=					Tape depth 58.8' Pull 13									
111111111111111111111111111111111111111			104		From 58.8 to 63.8 Run 5.0 Rec 5.2 C.L. 0.0 Time 9:50-10:03									
62 11 11	:													
=				·	Tape depth 64.0'									
64 =	1			64.5	Pull 14 From 63.8 to 68.8									
					Run 5.0 Rec 4.8 C.L. 0.2									
66 = = = = = = = = = = = = = = = = = =			96	7	Time 10:10-10:21									
11111	:	C-138		; ;										
•	54 56 58 60 62 64	54	Machine break 52.9' 54	Machine break 52.9' 54	Machine break 52.9' 53.8 53.8 56. 58. 104. 64.5 96. 7. 65.									

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KILLING	LOG (Cont S	Hole No. 39E			
OJECT			INSTALLATION	well L	ake	SHEET 5
ELEVATION	оертн	LEGEND	CLASSIFICATION OF MATERIALS	% CORE	BOX OR	REMARKS (Drilling time, water loss, depth of
50720	68 5	c	d d	ERY	NO.	weathering, etc., if significant;
			Concrete (Continued)			Pull 14 (Continued)
506.2		•	· · · · · · · · · · · · · · · · · · ·		<u> </u>	Tape depth 68.8'
]			Box	Pull 15
					7	From 68.8 to 73.8 Run 5.0
ļ	70 —					Rec 5.0
	, , _					C.L. 0.0
	_					Time $10:30-10:41$
			Machine break 71.3'	100		
	_		•			
	72				}	
	_					
	_					
501.2	_					Tape depth 73.8'
-	74			1	7	Pull 16
	=					From 73.8 to 78.8
	_				}	Run 5.0 Rec 5.0
	_					C.L. 0.0
	_				75.5	Time 10:48-11:02
	76			100	Box	
	_			100	8	
	=		/ Machine break 76.9'			
					1	
	78 —					
506 B	_		Concrete panel-earthe			Tape depth 78.3'
596.2			dike interface (0-1"	``	-	Pull 17
	_		deep) 78.8'-82.3'			From 78.8 to 33.3
	_	1 /	/ Machine break 79.8'		1 :	Run 5.0
	80 —			1		Rec 3.5 C.L. 1.5
	-		/Machine break 80.8'	İ		Time 11:40-11:47
	·	+ + +	/ Ulear UU.U	70		Note: changed from
			/ Machine break 81.5'	/ / /	1	bottom discharge o
	82 —	/	/ Machine break 82.1'			face discharge bit at depth 78.8'
	04 —		∠ nachine break 02.1° -			at depth /0.0
	; -]				
		4			!	
591.2	<u> </u>	i		1	92 0	Tana danth on 71
- • =	84 —	1			83.8	Tape depth 82.7' Note: 7-11-84 water
	!	4		į	1	level after drill
	•	4	Bottom of hole 83.7'	!		not measurable due
	_					to standing water
	, -		C-13	39		around hole 7-12-84 water level
]		İ		
	! _	i			1	24hrs after drill

Hole No. 42

							Hole No.	42	-
DRILLI	NC I O		VISION	Hart	ation well	Take		OF 6 SHEETS	1
PROJECT	NO LO		South Atlantic	10. SIZE	AND TYPE	OF BIT	HQ Diamond		1
Clemso	on Up	per D	iversion Dam	11. DATU	M FOR EL	EVATION	SHOWN (TBM or MSL))]
LOCATION	(Coordina	tes or Sta	tion)		S L	P'S DESIG	NATION OF DRILL		1
Sta. 12				4	ME 5 5	N 3 DE313	MATION OF DATE		1
Froehl	ing a	nd Ro	bertson Inc.	13. TOTA	L NO. OF	OVER-	DISTURBED	UNDISTURBED	1
HOLE NO.	As shown	on drawli	42					<u>:</u>	┨
NAME OF D	RILLER				ATION GR		7 # 8		1
Tommy	Burne	tte		13. 652		! 97 A!	N/A	OMPLETED	1
DIRECTION			DEG. FROM VERT.	16. DATE	HOLE	4 -	30-84	5-1-84	4
				17. ELEV	ATION TO	P OF HOL	E 674.2		4
THICKNES			26.0				FOR BORING	94 *	4
DEPTH OR			Concrete 86.2	-	ature of ancy R			er)	١
TOTAL DE	PTH OF	HOLE	92.2		% CORE	BOX OR	REMA	RKS	7
LEVATION	DEPTH	LEGEND	(Description)	763	ERY	SAMPLE NO.	(Drilling time, was weathering, etc.	, if eignificand	-
74.02	O P	-	4		•		Pull 1	<u></u>	+
1			Concrete Machine break-0.	4	{	1	From 0.0	to 2.2	ţ
			Machine break-1.		100	Box	Run 2.2		ţ
ļ						1	Rec 2.2		t
Ì	_	}	Machine break-2.	Λ		1	C.L. 0.0 Time 8:25	-8-40	Ì
72.0	2	}		O]	Tape de	prh 2.21	_‡
	_					į	Pull 2		I
		ł					From 2.2	to 7.2	-
	~	1					Run 5.0 Rec 2.9		
i	4 =	1			58		C.L. 2.1		
	-	1			"	(Time 8:57	-9:16	ı
] =	1					1.00	200	
		1				1	Note: 100		İ
	=	1			1		color. Ch		
	_ =	‡					drill bit	at 2.2'	
	°	7	Segregated aggla	gate			depth	-1 5 01	
	-	7	zone 6.3'-7.7'		1	}	Pull 3	epth 5.0'	7
667.0	-	7	Machine break-7.	3 '		1	From 7.2	to 10.2	1
		3		•			Run 3.0		
	8 —	3					Rec 5.2		
	-	1			173	}	C.L. 0.0 Time 9:33	2-9-36	
	-	1			11/3		Time 7.5	_ ,.,,	
		7						anged back	
664.0		7				1		ous drill	
664.0	10	7	Machine break-1().0	1	10.2		.2' depth ase recove	, ,-
-, -,		7						epth 10.4'	
	-	7			1	Вох	Pull 4		_
	-	=			95	J 2		2 to 12,2	
		7	Machine break-12	2 0			Run 2.0		
662.0	12_	7	- Machine break-1.	<u>.</u> . ∪		}	Rec 1.9		_
, <u>,,,</u> ,,		7					Time 9:4		ſ
		7		C-140			Tape d	epth 12.3'	
		7			100	}	Pull 5		_
		7						2 to 17.2	
660.2	14 -	7				-	Run 5.0		
i	1	7	Continued sheet	# 2		1	1		

DRILLING	LOG	(Cont S	heet	ELEVATION TOP	OF HOLE	674.2				Hole No.	
280.1507	•			ion Dam		INSTALLATION		 well	Lake		SHEET 2
ELEVATION	DEPTH DEPTH	LEGEND	Vers	CLASSIFICATION	ON OF				BOX OR SAMPLE NO.	(Drilling time.	MARKS water loss, depth of itc., if significant)
560.2	146	c			<u>d</u>	4 - 11 - 4 \		<u>e</u>	ſ	Du 11 5 ((Sontinued)
	16		Con	crete (Cont	inued)			Box 2	Rec 5.0 C.L. 0.0 Time 9:52	-10:01
557.0		₫					-			Tape do Pull 6	epth 17.3'
	18							100			2 to 22.2 06-10:14
	:	4	Ma	chine b	reak	-20.6					
									21.1		
		3								m	22 2!
652.0	22 —	-							Box 3	Pull 7	epth 22.3'
										From 22. Run 5.0 Rec 5.0 C.L. 0.0	
	24 -							100		Time 10:	20-19:30
	26_										
647.0	_	7								Tape d	lepth 27.5'
	28_	7777									.2 to 32.2
	30_							100		Time 10:	35-10:45
	-		M	achine	brea	k-30.9	C - 141				
642.2	2.2	\exists							31.9	9	
1947.7	32_		-			eet #3		·			

	1001	Cont	heet) ELEVATION TOP OF HOLE			Hole No. 42			
MOJECT (lems(חתון מכ	er D	iversion Dam	INSTALLATION Hart	well	Lake		SHEET 3	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF	MATERIALS	% CORE	BOX OR	REMARKS (Drilling time, water to	oss. depth o	
642.2	3 %	c	d	•	ERY	NO.	weathering, etc., if ii B_	gнірсант) 	
642.0			Concrete (Cont	inued)			-Pull 8 (Cont		
j	7		Loosely cemen	ted aggre-			Tape depth	32.2	
j	7	-	gate zone 32.			Box	Pull 9		
	7		(0-½" deep)			4	From 32.2 to	37.2	
	34 🗒		•				Run 5.0 Rec 5.0		
	37-7				100		S.T. 0.0		
	7						Time 10:51-1	1:02	
	コ								
	コ					1			
	36								
	7~—								
Ì	\exists	,							
637.0			Loosely cemen	ted agore-			Tape depth	37 2	
437.9	Ⅎ		gate zone 37.			†	Pull 10		
ļ	38_=		(0-½" deep)				From 37.2 to	42.2	
	, o —					}	Run 5.0		
	\exists						Rec 5.1 C.L. 0.0		
ļ					102		Time 11:09-1	1.20	
	\exists							- <i>J</i>	
	40								
ļ	+0]			
	\exists					İ			
						}			
1	\exists								
i	, , 🗆								
632.0	42		Occasional ag	gregate		42.3'	Tape depth	42.3	
	⇉		voids (0-3/8"	deep)			Pull 11	, ~	
!	크		42.3'-43.3'				From 42.2 to	47.2	
	\exists	,				Вох	Rum 5.0 Rec 4.9		
}	44					5 5 5	C.L 0.1		
	777				98		Time 11:29-1	1:41	
						[[
ļ	4								
} !	46		_			}			
 	` / 🚽		Segregated as						
!	= =		zone 46.2'-48	.0.					
627.6			: !				Tape depth	47.5	
947.5	7		1		; 	i	Pul! 12		
	48					[[From 47.2 to	50.0	
 	7" -				100	1	Run 5.0 Rec 5.0		
!	1		1		TOO.	, [Rec 3.0 C.L. 0.0		
!			 	C-142	!	1	Time 12:37-1	2:51	
	크				ļ				
					į				
624.2	571 7		i		!	1			

DRILLING	LOG (Cont Si	neet) ELEVATION TOP OF H	674.2			Hole No. 42
PROJECT				INSTALLATION			SHEET 4
Clems	on Upj	per Di	version Dam	Har	twell		OF 6 SHEETS
ELEVATION 624.2	DEPTH	LEGEND	CLASSIFICATION C (Descripti d		% CORE RECOV- ERY	BOX OR SAMPLE NO.	REMARKS (Drilling time: water loss, depth of weathering, etc., if significant) R
024.2	306	С	Concrete (Co	ntinued)			Pull 12 (Continued
622.0	52		Concrete (oc	neinded)	100	53.3'	Tape depth 52.2' Pull 13 From 52.2 to 57.2 Run 5.0 Rec 5.0 C.L. 0.0 Time 12:37-1:11
617.0	56					8 o x 6	Tape depth 57.2' Pull 14 From 57.2 to 62.2 Run 5.0 Rec 5.0 C.L. 0.0 Time 1:16-1:32
612.0	60-				100		Tape depth 62.2
	64				100	54.2' Box 7	From 62.2 to 67.2 Run 5.0 Rec 5.0 C.L. 0.0 Time 1:39-1:55
607.0				C-14	13		Tape depth 67.2 Pull 16

RILLING	LOG	(Cont S	heet) ELEVATION TOP OF HOLE 674.2			Hole No. 42
DIECT	-	<u>`</u>	INSTALLATION			SHEET 5
	son U	pper	Diversion Dam Ha	rtwell		OF 6 SHEETS
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
06.2	68b	c	d		-	8
	70 —		Concrete (Continued) Segregated aggregate zone 68.8'-70.8'	100	Box 7	Pull 16 (Continued) From 67.2 to 72.2 Run 5.0 Rec 5.0 C.L. 0.0 Time 2:03-2:18
502.0	72 —					Tape depth 72.2' Pull 17 From 72.2 to 77.2 Run 5.0 Rec 5.0
	74			100	75,2	C.L. 0.0 Time 2:25-2:38
597.0	76				8 8	Tape depth 77.2' Pull 18 From 77.2 to 82.2 Run 5.0
	80			100		Rec 5.0 C.L. 0.0 Time 8:18-8:32 Tape depth 82.2'
592. 0	82		Poorly cemented aggr	e – 88		Pull 19 From 82.2 to 87.2 Run 5.0 Rec 4.4 C.L. 0.6 Time 8:41-8:56 Note: 100% return
	84_		gate zone (0-3/8"deep 82.8'-83.4' Concrete panel, eart interface (0-1"deep) 83.5'-86.2'	!		drill water, gray color brown color beginning depth 84.0'
588.2	86_	 	Machine break-85.5 Continued sheet #6			

DRILLING	roe (Cont S	heet) ELEVATION TOP OF HO	674.2			Hole No. 42
PROJECT			version Dam	INSTALLATION	rtwell	Lake	SHEET 6
ELEVATION	рертн 8 бь	LEGEND	CLASSIFICATION OF (Description of description)	MATERIALS		BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) B
	_		Bottom of co			AB-1	Pull 19 (Continued)
			86.2' sand-c		1	İ	
587.0			bentonite co			Box	
30.			material 86.	2'-86.6'		9	Pull 20
	_						From 87.2 to 92.2
	88						Run 5.0
ĺ							Rec 0.0
						1	C.L. 5.0
					0		Time 9:01-9:11
j	90 _						
	90 —				Ì		
						1	
					1	į	
	_						
	92				92.2	}	
582.0	-				72.2		Tape depth 89.8'
			Bottom of hole	92.2'			Note: standing water
							around open hole end
	_						of drilling, water
							table depth mot
	94						applicable
	_				1		
						 	
					Ì		
						!	
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	-					[
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•				C-145			
				C / 13		}	
						1	
						1	
	=					1	
			1				

Hole No. 53 SHEET 1 DIVISION INSTALLATION DRILLING LOG OF 6 SHEETS Hartwell Lake South Atlantic 1 PROJECT 10. SIZE AND TYPE OF BIT HC Diamond 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Clemson Upper Diversion Dam 2. LOCATION (Coordinates or Station) MSL Sta 15+53 12. MANUFACTURER'S DESIGNATION OF CRILL 3. DRILLING AGENCY CME 55 Froehling and Robertson Inc. UNDISTURBED DISTURBED 13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 4. HOLE NO. (As shown on drawing title) 14. TOTAL NUMBER CORE BOXES S. NAME OF DRILLER 15. ELEVATION GROUND WATER 634.8 (24hrs.) Tommy Burnette STARTED 6. DIRECTION OF HOLE COMPLETED 16. DATE HOLE 4-25-84 4-26-84 __ DEG. FROM VERT. VERTICAL INCLINED 17. ELEVATION TOP OF HOLE 675.3 7. THICKNESS OF OVERBURDEN 13. TOTAL CORE RECOVERY FOR BORING 96 S. DEPTH DRILLED INTO Concrete 90.3 ft. 19. SIGNATURE OF INSPECTOR S. TOTAL DEPTH OF HOLE 98.0 ft. Nancy Rector (Engineer) % CORE RECOV-ERY BOX OR SAMPLE NO. REMARKS CLASSIFICATION OF MATERIALS (Description) DEPTH LEGEND (Drilling time, water loss, depth of weathering, etc., if significant) ELEVATION 675.3 О ь Pull 1 Concrete Loose aggregate-clay From 0.0 to 3.0 -seam .5 -.7 i Run 3.0 Poorly cemented aggre-Rec 2.8 93 Box gate zone .7'-2.0' C.L. 0.2 1 (0-1/2" deep) Time 11:02-11:10 Note: 100% return 672.3 drill water-grav 100 672.0 Occasional aggregate color-brown ? depth .5'-.7' voids 3.3'-4.4' Tape depth 2.9' Pull 2 From 3.0 to 3.3 Run 0.3 Rec 0.3 100 C.L. 0.0 Time 11:15-11:19 Note: Drill tool stopped:pull drill bit and barrel Pull 3 Machine break-7.9' 667.3 From 3.3 to 8.0 Run 4.7 Rec 4.7 C.L. 0.0 Time 11:29-11:40 Tape depth 8.0' Pull 4 10. 102 From 8.0 to 13.0 Run 5.0 Rec 5.1 11.2 C.L. 0.0 Time 12:28-12:38 12 Machine break-12.8' 662.3 Tape depth 13.0' C-146 Pull 5 Вох

Continued sneet #2

661.3

		Com	theet) ELEVATION TOP OF HOLE 675.3			Hole No. 53	3
Clems	on Up	per D	iversion Dam H	artwel	1 Tak		SHEET 2
			CLASSIFICATION OF MATERIALS	% CORE	BOX OR	REMA	OF 6 SHEETS
ELEVATION	DEPTH	LEGEND	(Description)	RECOV-	SAMPLE NO.	(Drilling time, we washering, etc.,	ster loss, depth of if significant)
661.3	145	c	d (2)	e	f		<u> </u>
	=		Concrete (Continued)		, l	Pull 5 (Co	
	=				Box 2	From 13.0 Run 5.0	to 18.0
			Machine break-15.3		2	Rec 5.0	
					j	C.L. 0.0	
	16 _	(100	1	Time 12:43	3-12:53
	7			1	}		-
	1 7						
	-				1		
	1 4]] }		
					1	Topo do-	- h
57.3	18 -			 	1 1	Pull 6	oth 18.0'
	7					From 18.0	to 23.0
					1 1	Run 5.0	
	7		Occasional aggregate	}		Rec 5.0	
	[]	ļ	voids 19.5'-22.4'	100	1	C.L. 0.0	
	20			1 100		Time 12:58	3-1:08
		-					
		}					
	=	-					
	-	1					
	22				21.9	-	
}	' ∃	1			}		
(5)			Machine break-22.8				
652.3					-	Tape der	oth 23.0'
]	}				Pull 7 From 23.0	to 28 0
	24				Box	Run 5.0	20.0
}	- · - 	1		100	3	Rec 5.0	
	二		•			C.L. 0.0	
	\dashv	İ]]	}	Time 1:14-	-1:25
	コ	1					
1	26	}			1		
	~ =	ł]]			
	\exists						
1		i					
		}			}		-1 20 -:
647.3	28 📑			——	-	Tape der Pull 8	oth 28.0'
	\exists				1	From 28.0	to 33 0
}		}			}	Run 5.0	20 33.0
[\exists				ĺ	Rec 5.0	
1.	30	1		100		C.L. 0.0	
[-	30 =				1	Time 1:35-	-1:47
1	7	{	Machine break-30.5		1		
}	⇉			})		
	극	ļ	C-147				
1		-		1 !			
543.3	32					*	
		I	Continued sheet #3				·

RILLING	LOG	Cont S	theet) ELEVATION TOP OF HOLE 675.3		_	Hole No. 53
C 1 om c	on IIn	ner D	installation Ham		Taka	SHEET 3 OF 6 SHEETS
	on up	Der D	iversion Dam Hart CLASSIFICATION OF MATERIALS	well % CORE	BOX OR	REMARKS
643.3	ВЕРТН	LEGEND	(Description)	RECOV. ERY	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
34-38-3	J 25	C	d Concrete (Continued)	├ -	-	Pull 8 (Continued)
642.3			conclude (continued)		32.6'	
,42.5					1	Tape depth 33.0' Pull 9
	= =					From 33.0 to 38.0
	34					Run 5.0 Rec 5.0
İ	=				Вох	C.L. 0.0
	=			100	4	Time 1:51-2:06
	\exists					
	36_					
j	\exists					
	\exists					
	#					
37.3	38					Tape depth 38.0'
	=					Pull 10
	\exists					From 38.0 to 43.0 Run 5.0
	\exists					Rec 5.0
	40_=			1.00		C.L. 0.0
				100		Time 2:11-2:26
	=					
	크					
	, ,]					
	42	ļ	_			
32.3	\exists	}				
, 2 . ,	ᆿ					Tape depth 43.0' Pull 11
	., ∃				43.5	From 43.0 to 48.0
	44				Box	Run 5.0 Rec 4.8
Ì	7			96	5	C.L. 0.2
	\exists					Time 2:33-2:47
	ヸ			1		
	46				<u> </u>	
	_					
		1				
	=					
7.3	48					Tape depth 47.9' Pull 12
	\exists					From 48.0 to 53.0
				104		Run 5.0
[=	1	C-148			Rec 5.2 C.L. 0.0
25.3	50					
1	=		Continued sheet #4			

RILLING	roe (Cont 5	heet) ELEVATION TOP OF HOL	675.3			Hole No.	53	_
UECT			ivision Dam	INSTALLATION	rtwell	Lake		SHEET 4	l
Crems	on op	ber D	CLASSIFICATION OF		% CORE	BOX OR	RE	MARKS	
EVATION	DEPTH	LEGEND	(Description		RECOV. ERY	SAMPLE NO.	(Drilling time. weathering, t	water loss, depth of sc., if significant)	
25.3	50ь	с	d	3	<u> </u>	f		<u>g</u>	_
	=	1	Poorly cement gate zone (0-				Pull 12 Time 2:5	(Continued))
ļ			50.1'-50.5'	' deep)	}	Вох	lime 2:5	4-3:00	
			30.2 30.3		1	5			
	_		Concrete (Cont	inued)					
	52								
	_								
22.3	=					53.0	Tape d	epth 53.0'	
					 	33.0	Pull 13		
	_							0 to 58.0	
	54						Run 5.0 Rec 5.0		
	=				100		C.L. 0.0	1	
	_	†					Time 8:2		
		†				Box			
	=	1				6			
	56	1			İ				
	=	1			{	Í			
] =	1							
	-	‡							
	=	1	1						
517.3	58	4				-	Full 14	<u>epth 53.0'</u>	
	=	1					· -	0 to 63.0	
	=	1					Run 5.0		
	-	1					Rec 5.0		
	=	7			100		C.L. 0.0 Time 8:5		
	60_	7			100		lime o:	73-5.10	
	-	7							
		3							
	-	3							
	_	3			Ì		1		
	62	_							
	1 -	_					1		
612.3		_				4	Tape o	lepth 63.0'	
	-	4				1	Pull 15	.0 to 68.0	
	-	1				64.0		.0 20 00.0	
	64_	_					Rec 5.0		
		1					C.L. 0.0		
	_	_			100	Box 7	Time 9:	18-9:37	
		1	•			\ '			
	66_	7							
	00-	7				1			
		7		_					
	_	=		C-16	19				
607.3	68_	=					Tape de	epth 68.0'	
	100_						— , — — —		

RILLING	LOG	Cont	Sheet)	ELEVATION	OF OF HOLE	675.3				Hole No. 5	
OJECT				_	Ì	INSTALLATION	шот	t v o 1 1	Lake		SHEET 5
Clems	son U	pper	Dive:	rsion	ATION OF	A4 A TERIAL E	паг	% CORE	BOX OR	REM	ARKS
ELEVATION	DEPTH	LEGEND		CLASSIPIC	(Description			RECOV- ERY	SAMPLE NO.	(Drilling time, w weathering, etc	eater loss, depth of if significant)
07.3	68	c	<u> </u>		d			ее	f	Pull 16	<u> </u>
	_		Con	crete	(Cont	inued)			Box	From 68.0	to 73.0
									7	Run 5.0	
		}								Rec 4.9	
		Ì					:			C.L. 0.1 Time 9:46	-10:06
	70	<u> </u>						98		Time 7. vo	20.00
	_	<u> </u>								ı	
		1								 - -	
	_	‡						Ì			
ļ		1									
	72	‡									
	_	1								Tape de	pth 72.9°
502.3		1							1	Pull 17	Ļ
	_	1								From 73.0	to 78.0
	74 =	1								Run 5.0 Rec 5.1	
	_	1						}		C.L. 0.0	
	=	7							75.0'	Time 10.3	4-10:45
	-	7						102	73.0	1	
	{ =	3						102	1	Note: Cha	inged drill lepth 73.0'
	76_	3	j]	Box	bits at c	repear 75.5
		}							8	1	
	} =	3								ļ	
		1									
	-	1								7	epth 78.0'
597.3	78_	4							4	Pull 18	=prn /0.9
] =	╡					-			From 78.0) to 83.0
	_	‡								Run 5.0	
	-	╡						-	1	Rec 5.0 C.L. 0.0	
		4						100	}	Time 10:	56-11:08
	80	7	м.	achine	brea	k-80.1		100			
		7							}		
	=	7									
	-	3						}			
		3						1			
	82_	\exists									
		_							1	m	epth 83.0'
592.3		_							4	Pull 19	ehru 03.0
		_			_					From 83.	0 to 88.0
	84	_			-					Run 5.0	
	"-	_						96		Rec 4.8	
		_					_		1	C.L. 0.2	16-11:31
	_	_				С	- 150			lime II:	10-11.31
589.3	8.6								85.9	1	
J09.3		┧	-	ntinu	ed she	er #6					
	1							1	(1	

RILLING	LOG (Cont S	heet) ELEVATION TOP OF HOLE 675.	. 3			Hole No.	53	
OJECT			INSTALLAT		we 1.1	Lake		SHEET OF 6	6 SHEETS
Clem	son U	pper	Diversion Dam Classification OF Material	76	CORE	BOX OR	REM (Drilling time, u	ARKS	depth of
EVATION	DEPTH	LEGEND	(Description)	1 ~ 6	ERY	SAMPLE NO.	weathering, etc.	if signifi	cant)
89.3	86ь	c	d		<u> </u>	f	Pull 19 (Conti	nued)
	=		Concrete (Continue	ed)		{	Pull 19 (COHEL	mucuy
	=								
	=			}		Box 9			
87.3	88 -					9	Tape de	pth 8	37.9
	00 =			Γ		i t	Pull 20		
	=	1		1			From 88.0 Run 5.0	to S	93.0
		1			78	}	Rec 3.9		
	=	1	30° Machine break	1	, 0		C.L. 1.1		
	90 =		-90.0'	09.0			Time 11:4	1-11	: 59
	-]	45° Sloping botto	m of			Note: Dri	111 wa	ater
) =	}	concrete 90.0'-90	.3'			100% retu		
	_	1	Brown-gray-white	fine			color, th	ien b	rown
	=	1	to medium grained				color at fine sand	dept:	n 91.∪ water
	92_	1	micaceous silty s	,					
582.3	=	‡		rain od			Tape de Pull 21	epth	92.5
302.3	=	7	-grades coarser g sand, weathere	d rock			From 93.) to	98.0 L
		3	fragments				Run 5.0		
	-	}					Rec 2.4 C.L. 2.6		
	94	Ⅎ	Gray-white coarse medium-fine grain			1	Time 1:5	7-2:1	1
	-	7	sand, with strati		48				
		4	brown clay layers						
	-	1							
	96_	3							
		}		-		1			
	} =	Ⅎ							
	\ -	7							
	-	7				98.0	Tape d	anth	98 01
577.3	98_	7	Bottom of hole-98	3 0'		170.0	Tape u	epen	
		3	BOCCOM OI HOLE-)	}			Note: 4-		
		\exists					level af 39.0 ft.	ter d	rillin
		_				Ì	4-27-84	water	level
		‡					at 24 hr		
	_	7				į			
							<u> </u>		
			}						
	-			į					
		7							
	-	7		C-151					
		=							
	-	_							
		4		ļ					

Hole No. 57

								31	_
DRILL	LING LO		vision South Atlantic	Hart	well	Take		SHEET I	7
I. PROJECT			oden neranere		AND TYPE		HO Diamond	OF 5 SHEETS	-{
Clemso	n <u>Up</u> p	er Di	iversion Dam				SHOWN (TBM or MSL)		1
Sta. 1		ates or Sta	et (on)	13-14	MSL	TOLE DEEL	GNATION OF DRILL		4
3. DRILLING				1	55	EK.2 DEZI	GNATION OF DRILL		1
Froehl	ing a	ind Ro	bertson, Inc.	13. TOT	AL NO. OF	OVER-	DISTURBED	UNDISTURBED	1
4. HOLE NO.	(As show mbas)	n on drawi	ne (III • !	BURI	DEN SAMPI	LES TAKE	N/A	N/A	4
S. NAME OF					AL NUMBE				4
Tommy				15. ELE	VATION GE		020.0 (2	4 hours)	4
6. DIRECTIO			DEG. FROM VERT.	16. DAT	E HOLE		-18-84	MPLETED 4-19-84	
(A) VEA 11				17. ELE	VATION TO			9-13-0-	1
7. THICKNES				15. TOT	AL CORE F	RECOVER	Y FOR BORING	96	.1
S. DEPTH OF			Concrete 73.6	1	ATURE OF				1
9. TOTAL DE	EPTH OF	HOLE 8	33.4				(Engineer)		4
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA (Description)	LS	RECOV-	BOX OR SAMPLE NO.	REMAR (Drilling time, water weathering, etc.,	KS v lose, depth of	
675. • 9	0 6	c	4		•	f.	9	ir eigniticent	\perp
	-		Concrete		1		Pull 1		E
	=						From 0.0 to	3.4	F
					100		Run 3.4 Rec 3.4		F
			Machine break-1.	Ωţ	100	1	C.L. 0.0		F
	2 =	ł	machine break-1.	O		Вох	Time 1:46-2	:08	F
	_					1			
	=]]	Note: 100%	drill	
			Machine break-3.	0.			water retur	n-gray	
672.5	! -	1					color		丰
	4 =	-					Pull 2 From 3.4 to	8 4	
			Marking Lagar /	- 1	1		Run 5.0	0.4	
	=		Machine break-4	. 5			Rec 5.0		
		i			ļ.	1	C.L. 0.0		E
	=		Machine break-5.	4 '	100		Time 2:16-3	: 29	E
	6 =				!				E
i	l° —								E
	=	1		-					E
									F
] =	1							
	=	†			[F
667.5	8 =	†			})			F
	=	1				†	Pull 3		干
		‡				}	From 8.4 to	13.4	F
	=	‡					Run 5.0		F
	1, , =	1			1	1	Rec 5.0 C.L. 0.0		F
	10	1			100]	Time 2:30-2	.46	F
	=	1				10.6	1 2.50-2	. • 🔫 🗤	F
		1							F
	-	1				,			F
	1 =	1			1	Box 2			F
	12	}				~			L
	=	}			[1			E
661.5	=	1	c-	152	ļ				E
	=	1					Tape depth-	. 13 5'	F
	=	1				1	Pull 4		七
661.9	14	1 —					-		E
	=	1	Continued Sheet #2]	1			F
l	i <u> </u>	4	I		t	İ	I		

KILLING	LOG	Cont S	heet)			675	. 9			Hole No.	57
IO)ECT						INSTALLAT					SHEET 2
CIO	emson	Uppe	r Div	ersio				well			OF 5 SHEETS
LEVATION	DEPTH	LEGEND			ATION O (Descripto	F MATERIAL	L\$	% CORE RECOV- ERY	BOX OR SAMPLE NO.	(Drilling time.	MARKS water loss, depth of tc., if significant)
61a.9	14	c			d			e .	f		g
	16		Cond	rete	(Con	tinued	1)	100	Box	Pull 4 (0) From 13.4 Run 5.0 Rec 5.0 C.L. 0.0 Time 2:56	
	18	-	Ma	chine	brea	ak-17.	o <i>'</i>		2		
57.5	20	4	M a	chine	brea	ak-19.	7 ^{†.}	100		Tape dept Pull 5 From 18.4 Run 5.0 Rec 5.0 C.L. 0.0 Time 3:17	to 23.4
	22	=	Ho d e	neyco ep) 2	mb po	ocket -22.0'	(12"		21.6		
52.5	24						-	98	Box 3	Tape dept Pull 6 From 23.4 Run 5.0 Rec 4.0 C.L. 0.1 Time 8:12	to 28.4
47.5	26									Tana da-	5 20 / 1
,,,,	30						C-153	100		Tape dept Pull 7 From 28.4 Run 5.0 Rec 5.0 C.L. 0.0 Time 8:43	to 33.4
43.9	32						C-177				

ILLING	LOG (Cont S	heet) ELEVATION TOP OF HOL	675.9			Hole No.	57	4
JECT				INSTALLATION				SHEET 3	
	mson	Upper	Diversion Dam	Ha	rtwell	Lake			4
EVATION	DEPTH	LEGEND	CLASSIFICATION OF		% CORE RECOV- ERY	BOX OR SAMPLE NO.	(Drilling time.	MARKS water loss, depth of ic., if significant)	
43.9	32ь	с	<u>d</u>		- e	32.2	Pull 7 ((continued)	+
43.7	_		Concrete (Cont	inued)			rutt / //	Jone Indee,	Ł
	_								Ŀ
	<u> </u>	i					Tape dept	th 33.4'	\perp
42.5	{ =	{				Box	Pull 8		-
	34 =	1				4		4 to 38.4	
	-]					Run 5.0		
	=	1			}		Rec 5.1 C.L. 0.0		- 1
] _	1	Machine brea	ak-35.1'	102		Time 9:0	8-9:24	
] =	1			102		Time 5.0	J. 2	
	36 -	1							- 1
	"-	1	1		}	}			ı
	=	‡							ı
		1							
] =	1							
	38 -	1	Machine bre	ak-38.01					
37 E	'0-	i	"Identine pre				 Tane den	th 38.41	
37.5	=	_				7	Pull 9		
	-	7			Ì		i -	4 to 43.4	
	=	7	}				Run 5.0		
	_	Ä					Rec 4.9		
	40	7					C.L. 0.1		
		1			98		Time 9:3	3-9:52	
		†							
	-	‡							
		‡							
	42_								
		₫		-					
) :	_				43.1	,		
(22 5	\ <u>-</u>	\exists				42.1	Tape der	oth 43.4'	
632.5		3				7	Pull 10		
	44_	-						.4' to 48.4	
		7				_	Run 5.0		
		_			102	Box 5	Rec 5.1 C.L. 0.0	1	
		\exists			102	ر اِ .	Time 9:	58-10:13	
								- 	
	46	7	Machine bre	eak-45.9'					
	-	\exists							
		コ							
	_	コ							
		7				1			
	48_								
427 5	40-							pth 48.41	
627.5	`	-		C-1	511	7	Pull 11		
		_		C-1	7.1			.4 to 53.4	
		_					Run 5.0		
		\exists					Rec 5.0		
525.9	5 0_		Continued sh	est #/	-	·			
	1	-	Continued su	C € L 7 **	į	Į.			

	LOG	(Cont 3	heet) ELEVATION TO					Hole No.	
PROJECT		••	- .	_	INSTALLATION	7 1			SHEET 4
ELEVATION	DEPTH	LEGEND	Diversion		MATERIALS	% CORE RECOV- ERY	BOX OR SAMPLE NO.	REM. (Drilling time, w. weathering, etc.	OF 5 SHEETS NRKS Iter loss, depth of
625.9	50	c		d		e	f.		s
	=		Concrete	(Cont	inued)		Box	Pull 11 (0	ontinue
						100	5	C.L. 0.0 Time 10:20	0-10:35
	52								
622.5								Tape depth	53.4'
ļ	54						53.8'	Pull 12 From 53.4	to 58.4
								Run 5.0 Rec 5.0	
						100	Box 6	C.L. 0.0	12 22
						100	0	Time 12:07	-12:23
	56								
617.5	58							T 11	50 / t
								Tape depth Pull 13	
								From 58.4 Run 5.0	to 53.4
	50							Rec 5.0 C.L. 0.0	
	=				-	100		Time 12:30	-12:49
	=								
[62		W = -1 1	, .	(2, 0.1				
	=		Machine	breal	t-62.2°				
512.5								Tape depth	63.41
	64							Pull 14	
								From 63.6 Run 5.0	E3 58.4
	=	1				98	54 91 Box		
							7	Time 12:56	-1:10
	66								
	_				1				
					2-155				
607.9	58					<u> </u>	li		-

DRILLING	roc	(Cont S	heet) ELEVATION TOP OF HOLE	675.9			Hole No.	
PROJECT				INSTALLATION	1	1 7 - 1-		SHEET 5
Cle	nson	upper	Diversion Dam		artwel % CORE	Lak	REM	ARKS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description		RECOV- ERY	SAMPLE NO.	(Drilling time, w	ster loss, depth of , if significant)
607.9	685	C	d Concrete (Cont	inued)	<u>e</u>		Pull 14 (C	optiqued)
607.5] =		i concerce (ounc	2424	 	†	Pill 15	
	70				102	Вож 7	From 68.4 Run 5.0 Rec 5.1 C.L. 0.0 Time 1:30-	
	72		Machine brea	k-72.1'				
602.5	76		Concrete pandinterface (0 73.6'-83.4'		90	75.7'	Tape depth Pull 16 From 73.4 Run 5.0 Rec 4.5 C.L. 0.5 Time 1:50- Note: 1007 drill wate color. Dri panel at 7	2:02 creturn cr-brown .11 out of
597.5	80				38	Box 8	Tape depth Pull 17 From 78.4 Run 5.0 Rec 1.9 C.L. 3.1 Time 2:17- Note: 100% drill wate	to 83.4 -2:30
592.5	82		Bottom of hole	-83.4			Tape depth	82.8'
	84			C-156			Note: 4-23 level at 2 47.3'	

•

·		LOW	VISION		INSTALL	ATION		1,0,4,140.	SHEETI
DRILL	ING LO		South Atl	antic	На	artwel	1 Lak	e	OF 6 SHEETS
PROJECT								HO Diamond	
			iversion	Dam		M FOR EL	EVATION	SHOWN (TEM & MSL	.)
STA.			tion)		MS L	FACTURE	R'S DESIG	NATION OF DRILL	
DRILLING	AGENCY				CME	_55			~-
Froeh	ling	and F	obertson		13. TOTA	L NO. OF	OVER- ES TAKE	DISTURBED	UNDISTURBED
HOLE NO.	(Ag shown mbac	on drawi	57-A						: : : : : : : : : : : : : : : : : : :
NAME OF	RILLER					ATION GR			(2/)
	Burn				15. ELEV	ATION GR		037.4	(24 hrs.)
DIRECTIO				050 EEOM VERY	16. DATE	HOLE		23/84	4/25/84
N VERTIC	:AL []'	NCLINED	·	DEG. FROM VERT.	17. ELE	ATION TO		LE 675.9	
. THICKNES	S OF OVE	RBURDE	N		 			Y FOR BORING	94 %
. DEPTH DR	ILLED IN	ТО	Concrete	90.8'		ATURE OF			
, TOTAL DE	PTH OF	HOLE	98.4		Nan	cy Rec	ctor	(Engineer)
ELEVATION	05974	LEGEND	CLASSIFIC	ATION OF MATERIA	ALS	% CORE	BOX OR		ARKS Her lose, depth of
675 . 9	0 6	CEGENO	((Description)		ERY	NO.		, if eignificand
, , , , ,	•		Machin	brack=0 4				Pull 1	 -
	_		Machine	break-0.4 break-0.6	,	{	[From 0.0	to 3.4
i							1	Run 3.4	
			Concret	e		12	1	Rec 0.4	
	=	ļ				12	ļ	C.L. 3.0	
	2					}	Box	Time 11:0	5-11:30
	(=		1 1 1 1	break-2.6	t	1	1		
	_	}	Machine	break-2.6		}	_	Note: Chi	
. =		1			•	ł		into conc	
572.5	=		Machine	break-3.4	•	<u> </u>	1	gray colo	ill water,
	1. =	1					l		pth 0.8'
	4	ł				{		Pull 2	<u> </u>
	_	}				}	1	From 3.4	to 6.2
	=	}	Machine	break-4.9	1			Run 2.8	
		1				100		Rec 5.5	
	=	1	Machine	break-5.7	1	196	ļ	C.L. 0.0	
	6	1				}	}	Time 11:5	
669.7	=	1	1				1	Tape de	pth 6.1' 5
] -	}	}				1		
	-	7	Maahina	break-7.3	•	}		Pull 3	. 0 /
	} =	7				}	1	From 6.2 Run 2.2	10 0.4
	\. =	7	- lachine	break-7.7		91		Run 2.2 Rec 2.0	
667.5	8 —	‡				1	1	C.L. 0.2	
د . ۱۰ ۰	_	╛				<u> </u>	1	Time 1:15	-1:22
		1]	j		pth 8.2'
	-	-							
	-	7						Pull 4	
	10-	‡					}	From 8.4	to 13.4
		_						Run 5.0	
	-	_					10.9	Rec 5.2	
	-	-}				104		C.L. 0.0 Time 1:40	1-1:50
		7	}				Box	1 11116 1.40	r - s
	1	1	}				2	Note: Cha	ange drill
	12						1	bit to re	-
	-	<u> </u>		,	1 167			machine b	
	=	7		(. 157		1		
662.5	-	7				1		Tape de	epth 13.4
	-	#	{			-	1	Pull 5	
661.9	14-					1			
JJL.J		1	Continu	ed Sheet #2	, 	+	+	 -	
l		J	1 continue	su oneet "2	•	1	1	I	

DRILLING	LOG	(Cont S	heet) ELEVATION TOP OF HOLE 675.9			Hole No. 57-A
PROJECT			INSTALLATION	1 ()		SHEET 2 OF 6 SHEETS
Cle	mson	Upper	Diversion Dam Hartwel CLASSIFICATION OF MATERIALS	% CORE	BOX OR	REMARKS
ELEVATION	DEPTH	LEGEND	(Description)	RECOV- ERY	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
661 49	16	c	d	e	f	g
	T =		Concrete (Continued)			Pull 5 (Continued)
	_	}				From 13.4 to 18.4 Run 5.0
	-	1			B o Y	Rec 5.0
	=	}				C.L. 0.0
	16 _	}		100	-	Time 1:54-2:06
	-	}				
	1 =	}				
	i	1				
	18 -	1			}	
	18	i			}	
657.5	1 =	1			1	Tape depth 18.4'
	1 =	4			1	Pull 6 From 18.4 to 23.4
	_	1				Run 5.0
	20	4				Rec 5.0
	20	1		1		C.L. 0.0
1	=	₫		100		Time 2:10-2:20
!	=	1			ļ	
	_	1		1		
		1				
	22 _	‡	Machine break-22.1		22.1	
] =	‡		}	}	
:	=	1		}	Ì	}
652.5	-	7				Tape depth 23.4'
352.5	-	7				
	24 _	7			P	Pull 7
] =	7		}	Box 3	From 23.4 to 28.4 Run 5.0
		3				Rec 5.0
	-	3				C.L. 0.0
}	-			100		Time 2:25-2:34
	26 —	1	Machine break-26.4	}		
	1 -		Machine break-20.4			
1	-	#				
	-	_				
647.5	28 —	7				Tape depth 28.4'
047.3		7			7	Pull 8
	_	7				From 28.4 to 33.4
		7				Run 5.0
1		7		98		Rec 4.9 C.L. 0.1
İ	30 -	7	1			Time 2:40-2:52
1	20	7				
į	-	7	C- 158			
1		7				
643.9	32 _	7				
12 - 2 - 3	1	1	\			

RILLING	LOG	(Cont S	heet) ELEVATION TOP OF	675.9			Hole No.	57-A
OJECT				INSTALLATION	ell Lak	e		SHEET 3
Clem	son U	pper	Diversion Dan			BOX OR		ARKS
LEVATION	DEPTH	LEGEND		OF MATERIALS	RECOV.	SAMPLE NO.	(Drilling time, www.weathering, etc.	eater loss, depth of, if significant)
543 <u>.9</u>	32 b	c		d	e .	f		8
	_		Concrete (C	ontinued)		Box	Pull 8 (C	ontinued)
] =		0001			3 33.0		
		1			1	33.0	Tape dept	h 33 3 1
42.5] =	1			-	4	Pull 9	11 33.3
	_	1	}				From 33.4	to 38.4
	34	}			}	Box	Run 5.0	
	} =	1			}	4	Rec 5.0	
	=	1			Ì		C.L. 0.0	
		1			100	1	Time 2:56	-3:10
	_	1			Ţ	1		
	35 -]			ļ]	
	-	7			Ì	}		
	1 =	1			1			
	-	1					<u> </u>	
	1 =	1					Ì	
	30	1						
637.5	38	1					Tane de	pth 38.3'
د./دن	=	7				1	Pull 10	
		1					From 38.4	to 43 4
) -	1			1	}	Run 5.0	
	1 -	Ⅎ					Rec 5.1	
	40-	-			102		C.L. 0.0	
	1 40-	7			(Time 3:21	3:32
] =	7			j			
	_	1				}		
			1				i	
	42		Machine br	'eak 41./	i			
	42	_			}	-	1	
	-	-			1			
		7			1	1		
632.5	_	7			j	43.4	Tape de	pth 43.4'
032.3	1 -	∄				7	Pull 11	
	44					Вох	From 43.4	to 48.4
	1 -	_	1		ĺ	5	Run 5.0	
] -	7				1	Rec 5.0	
	_	7			(C.L. 0.0	
	1 :	ゴ					Time 9:00	0-9:15
		<u> </u>			100		1	
	46	_				1	}	
		7						
		7			}	}		
	-							
		Ⅎ			1	1		
	48	-			-			
627.5	70	7					Tape de	epth 48.4
,,,,		コ		_	-50	7	Pull 12	
	_	⇉		C.	-159	Ì		
	1	-				}		
	}	7				}		
625.9	50_		Continued			-		
	1	_	i Continued			1	i	

RILLING	LOG	Cont S	heet) ELEVATION TOP OF HOLE 675.9			Hole No. 57-A
סזנכו			INSTALLATION		1 7 - 1-	SHEET
Clems	on U	pper	Jivet 31011 Dan		l Lake	REMARKS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOV- ERY	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
625.9	58	<u> </u>	d	-	•	Pull 12 (Continued)
			Concrete (Continued)	98	Вож 5	From 48.4 to 53.4 Run 5.0 Rec 4.9
	52					C.L. 0.1 Time 9:21-9:34
622.5						Tape depth 53.3' Pull 13
i	54				54.5'	
	-			102		C.L. 0.0 Time 9:40-9:54
	56	1	Machine break-56.3		Box	
	-	1			6	
617.5	58				-	Tape depth 58.4 Pull 14
		1				From 58.4 to 63.4 Run 5.0 Rec 5.0
	60			100		C.L. 0.0 Time 10:01-10:13
	62-	7	Machine break-62.1			
612.5	61					Tape depth 63.4' Pull 15 From 63.4 to 68.4
	64_					Run 5.0 Rec 5.0 C.L. 0.0
	66_			100		Time 10:19-10:32
	_		C-160		Box 7	
607.9	68_	 	Continued sheet #5	_	_	

rilling	LOG	(Cont S	heet) ELEVATION TOP		75.9			Hole No.	57 – A
OJECT				in.	STALLATION	-11	. 1		SHEET 5
Clems	on Up	per D	iversion Dar			rell L	ake	OF M	OF D SHEETS
LEVATION	DEPTH	LEGEND	CLASSIFICATIO	(cription)	ATERIALS	RECOV- ERY	SAMPLE NO.	(Drilling time, u	vater loss, depth of, if significant)
	68ь	c		<u>d</u>		<u>e</u>	f	Pull 15 (Čontinușă)
07.5			Concrete (Contir	ued)	 	+		pth 68.4'
							Box	Pull 16	70 /
	=					[7	From 68.4	to 73.4
	-					}		Run 5.0	
	70_					}		Rec 5.0 C.L. 0.0	
						100	1	Time 10:4	1-10:54
	=					100			
	72_						1		
		ļ							
			}						
00.5								Т	ptn 73,41
02.5			 				}	Pull 17	pch /2.4
,	74							From 73.4	to 78.4
						1	}	Run 5.0	
								Rec 5.0	
						100		C.L. 0.0	
	=							Time 11:0	2-11:15
	76						}		
,	' "						76.4		
						Ì	1,0.4		
							}		
	_								
	7.0		Machine b	raak-	77 9				
07 5	78		lacuine b	reak-	,,,,		D o yr	. Tape de	nth 78 41
97.5	=		1			 	Box 8	Pull 18	pen 70.4
į	=							From 78.4	to 83.4
							!	Run 5.0	
:	=							Rec 5.0	
	80							C.L. 0.0	/ 33 / 6
						100		Time 11:2	4-11:40
						100	}		
							1		
	82					1			
]		
02 5		ļ						Tana da	pth 83.4'
92.5			_				1	Pull 19	реп 03.4
	84 -				_			From 83.4	to 88.4
					C-161	100		Run 5.0	• •
	=	1				1		Rec 5.0	
		1	Honeycomb	(¹_"de	ep:25.1'	1		C.L. 0.0	0 1000
	=	İ	Poorly ce					Time 11:4	8-1200
589.9	86 -	1	pate 200	85 A	u aggre-		1		
107.7	00		gate zone 87.9' (0- Continued	<u>き")</u> /					
	I	1	Continued	sheet	#6	1	1		

RILLING	roe (Cont S	iheet) ELEVATION TOP OF HOLE 675.9			Hole No. 57-A
OJECT Clem	son II	nner	Diversion Dam H	artwell	Lake	SHEET 6
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS		BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
89.9	86ь	C	d	-		8
			Concrete (Continued)		Bcx 8	Pull 19 (Continued)
			Machine break-87.1		87.1	
			Poorly cemented aggre	-		
	88 —		gate zone 85.6'-87.9'	}		Tape depth 88.4'
587.5			(0-½")		-	Pull 20
	i		Poorly cemented aggregate zone 89.0'-90.8'	100	Box 9	From 88.4 to 90.1
			(0-1/2")) 9	Run 1.7
	90					Rec 1.7 C.L. 0.0
85.8	-				1	Time 12:10-12:15 /
	=		Bottom of concrete			Tape depth 90.1
	_		90.8' Clay-Bentonite			Pull 21 From 90.1 to 93.4
			contact seam 90.8'- 91.4'	70		Run 33
	92		Loose aggregate, clay			2ec 2.3
	=		= and sand 91.4'-92.4'	1		C.L. 1.0
	=				1	Time 8:52-8:57
	=					Note: 100% return
82.5		1			1	drill water-brown
	94					color, sandy,
						Tape depth 93.4'
	=	ł				From 93.4 to 98.4
	-	1				Run 5.0
	=	}		0		Rec 0.0 C.L. 5.0
	96	1				Time 9:13-9:24
	=	†				
		\$				Note: 100% return
	=	‡				of drill water, brown color, sandy
	98 =	1				
77.5	=	1			98.4'	Tape depth 97.9'
] =	}	Bottom of hole 98.4'			
	<u> </u>	4		ļ	}	Note: 4-25-84 water
	=	1		ļ	(level after drilling
		1				35.5' 4-26-84 water level
		4			1	at 24hrs. 38.5'
		}				
	-	1			1	
		1			-	
	_	‡				
	-	1				
			C-16	2		
	-	1				
	-	1				
	-	7				

_	•							Hole No.	60	
ſ	DOIL!	LING LO	. 1	IVISION	INSTALL		- ,		SHEET]]
L	I. PROJECT		تـــــــــــــــــــــــــــــــــــــ	South Atlantic		rtwell		e HO Diamond	OF 6 SHEETS	4
			nner J	Diversion Dam	11. DATI	IM FOR EL	EVATION	HQ Diamond SHOWN (TBM or MSL)		1
7	LOCATION	(Coordina	ates or Sta		MSL				-]
}	Sta.	17+37			7		R'S DESIG	GNATION OF DRILL]
1	Froeh	hling	and R	Robertson Inc.	13. TOTA	55 AL NO. OF	OVER-	DISTURBED	UNDISTURBED	4
ľ	A. HOLE NO.	(As shown		ring title	BURC	DEN SAMPL	ES TAKE		1	
ł	S. HAME OF C			60		AL NUMBER]
		y Burn		· · · · · · · · · · · · · · · · · · ·	15. ELEV	VATION GR		041.2 (2		┙
ľ	DIRECTION			OOEG. FROM VERT.	16. DATE	E HOLE	:		MPLETED 4-18-84	1
1						VATION TO				1
-	7. THICKNES							Y FOR BORING	93 %	.†
-	S. DEPTH DR			COHCLECE 71.J	19. SIGNA	ATURE OF	INSPECT	TOR		1
1	. TOTAL DE	PTH OF	HOLE	98.1'	1	ncy Re				4
-	ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA (Description)	LS	% CORE RECOV- ERY	BOX OR SAMPLE NO.	(Drilling time, water weathering, etc., i	e loss death of	
١	675•7	0 6	с	4	<u></u> /	• ERY	NO.	weathering, etc., i	il eignitteamu	
1	- 1	Ī =	1 '	Concrete		('	1	Pull 1		E
	1	1 =	ĺ '		'	1 '	1	From 0.0 to	3.1	E
J	1	1 -	1 '			97	1	Run 3.1		
)	. 1	1 =	1 '		1	1911	1	Rec 3.0		E
)		$ _2 = \exists$	1		'	1 '	1	Time 9:55-1	10:20	E
-		1	1		'	1 '	1	1	O.23	F
1	J		1 '		1	1	1	1		F
1	672.6	1 -	4		1	<u></u> ′	1 '	<u></u>		上
1		1 =	4		İ	1	1	Pull 2	•	F
)		i, ¬	1 '		I	1	1	From 3.1 to	, 8.1	二
(J	4 ==	4 '		ŀ	1 '	1	Run 5.0 Rec 5.0		上
1	·	! ==	1 '		J	100		C.L. 0.0		
- }		1	4 '		ļ	1	Box	Time 10:26-	-10:36	上
)	. !	1 =	4		ı	1 '	1	1	_	
}	. 1	1. =	4		1	1 '	1	1		E
1	,	6	1		ı	1 '	1	1		
- }	ļ	1 =	1		ı	1 '	1	1		E
}	, 1		1		J	t '	1	1		<u> </u>
•	,	1 =	1	Poorly cemented	· .	1	1	1		E
)	, 1	-	t t	loose aggregate 7.3'-7.6'	zonej	1	1	1=====		E
1	667.6	8 -	t	1.3 -1.0	1	 '	4 1	Pull 3 From 8.1 to	12 1 L	Ę
1	ļ	1 =	<u> </u>	Clay-Bentonite	seam	1 '	{	Run 5.0	13.1	
ļ	,	1	į į	8.7'-8.8'	1	1	1	Rec 4.9		F
1	, 1	1 -	1		1	1	1	C.L. 0.1		F
1	, 1	1 -	1	Clay-Bentonite	o o o om	1	1	Time 10:40-	.10:50	F
1	i I	10-	1	9.8'-9.9'	seam,	1	1	1		上
}	1		+	Segregated Zone	<u>.</u> 1	1	10.3	}		F
ł	ı	1 =	1	9.9'-10.3'	1	98	† 	Γ		E
1	<i>i</i> 1		4		J	!	1	1		
•	ı	! =	4)	1	1	1		上
}	1	12	4		J	1	Box	1		
1	, !	=	1		J	1	2	1		E
(~ 62.6	=	4		C-163	1	1	1		E
7	~64.0 j		1		J		4 4	Pull 4		+
1	, ,	-	t		J	t '	1	rull 4		F
,	661.7	14	1	-Conti nu ed o n S heet-	# 2.	· '	1'	1		F
1	1	1 -	<u> </u>	Sometham on ones	***	,			_	F
,	,	1 7	۲	1	J	į į	(.)	~ ~ ~		\vdash

	. ,									 -∧⁻
•	DRILLING	LOG	(Cont	Sheet) ELEVATION TOP OF HOU				tiole No.	60	
	PROJECT				INSTALLATION				SHEET 2	1
	Cle	mson	Upper	Diversion Dam	Hartwe	11 La	ke		OF 6 SHEETS]
(FLEVATION	DEPTH	LEGEND	CLASSIFICATION OF		% CORE RECOV- ERY	BOX OR SAMPLE NO.	REMA (Drilling time, wa weathering, etc.,	ter loss, depth of	
•	7د 10م	146	c	d		e	f	8		↓_
		16		Concrete (Con	tinued)	98	Box 2	Pull 4 (Co From 13.1 Run 5.0 Rec 4.9 C.L. 0.1 Time 10:53	to 18.1	
		18		Clay-Benton 18.7'-18.8'	ite seam	100	20.3'	Pull 5 From 18.1 Run 5.0 Rec 5.0 C.L. 0.0 Time 1:05-		
(652.6	22		Segregated 21.3'-22.1'				Note: Down 5 min. dur drilling t pump leak.	ing o seal	
		24				100	Box 3	From 23.1 Run 5.0 Rec 5.0 C.L. 0.0 Time 1:26-		
		28						Pull 7 From 28.1 Run 5.0 Rec 5.0	to 33.1	
(30		Con <u>tin</u> ued <u>Sh</u> eet	C-164	100	30.9' Box	C.L. 0.0 Time 1:43-	-1:54	indianalana.
	}	=	3							F

	LOG	Cont S	heet) ELEVATION TOP OF HOLE 675.7				Hole No.	60
PROJECT C.1.	em son	Unner		nstallation Hartwell	1 1 0 10			SHEET 3
		İ	CLASSIFICATION OF M		% CORE	BOX OR	REN	OF 6 SHEETS
*LEVATION	DEPTH	LEGEND	(Description)		RECOV.	SAMPLE NO.	(Drilling time, u	vater loss, depth of
43 # 7	32b	_ c	<u>d</u>		e	f		<u> </u>
	=		Concrete (Cont	(nued)			Pull 7 (C	ontinued)
42.6	=		concrete (cont.	Inded/			1411 / (0	Oncinaed)
						1 :		
],]	1				7	Pull 8	- 20 1
	34					Box 4	From 33.1 Run 5.0	to 38.1
							Rec 5.0	
						i !	C.L. 0.0	
	=	į					Time 2:00	1-2:10
	36 _=				100			
					İ			
	=	 			İ			
37.6	38 _						Pull 9	
	=						TFrom 38.1 Run 5.0	to 43.1 =
	=						Red 5.0	
						!	C.L. 0.)	
] =	:					Time 2:16	-2:28
	40 =				100			
					100			
	=	1						
	42	Ì			! ;	41.8		
		ļ	Clay-Bentoni	ite seam				
22 (42.0'-42.2'					
32.5								
	E						Pull 10 From 43.1	-43 1
	44						Run 5.0	
	=						Rec 4.9	
	=	j				Box 5	C.L. 0.1 Time 2:33	0.40
						,	rime 1:00	:40
					98			
	46				!	}		
	\exists					!		
						i		
1		; ;						
27.6	1, 3							
21.5	48					-	D. 11 22	
				C-165			Pull 11 From 48.1	to 53 1
					100		Run 5.0	CO 33.I
	7						Rec 5.0	
525.7	50 =		Continued Sheet	#4	Ì		C.L. 0.0	2 00
,							Time 2:46	= → :∪∪

KILLING	LOG	Cont S	heat) ELEVATION TOP OF HOU				Hole No.	60
ROJECT				INSTALLATION				SHEET 4
<u> </u>	mson	Upper	Diversion Dam	Hartwe				OF 6 SHEETS
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF (Description		RECOV-	BOX OR SAMPLE NO.	(Drilling time, u	ARKS vater loss, depth of ., if significant)
25.47	50ь	c	d		e	f.		8
		1	0					
	-:		Concrete (Lont	imued)			Pull 11 (Continued)
	1 4				1	Box 5		
	1 =	İ						
	52					: 		
						52.4"		
22.6	=							
0					-	}		
	54						Pull 12 From 53.1	to 58 1
	54						Run 5.0	20 30.1
					İ		Rec 5.0	
	=					! :	C.L. 0.0	
		!			1	!!!!!	Time 3:08	-3:13
	56				100			
	56				100	Вох		
		j				6		
	=	İ			! 			
		ļ			!			
		i l			!			
17.6	58	i			<u></u>	1		
		İ				ì	Pull 13	
	=	1					From 58.1	to 53.1
		į					Run 5.0 Rec 5.0	
		:			:		C.L. 0.7	
	60	1				į	Time 3:25	-3:37
	7	1						
					100			
	\exists	i						
	62							
	\vdash							
12.5	!	1				63.1		
	-	!				- 	Pull 14	
	64	i				i i	From 63.1	to 68.1
i					}	!	Run 5.0 Rec 5.0	
	=	!					C.L. 0.0	
		- P			100	Box	Time 3:47	-4:01
						7		
	66							
					! !			
	56	1		C-166				
				C - 166				
	68							
		+	Continued Shee			ĺ		
07.7	.68 🗀	1	Continued Shoo	+ # 5	1	1		

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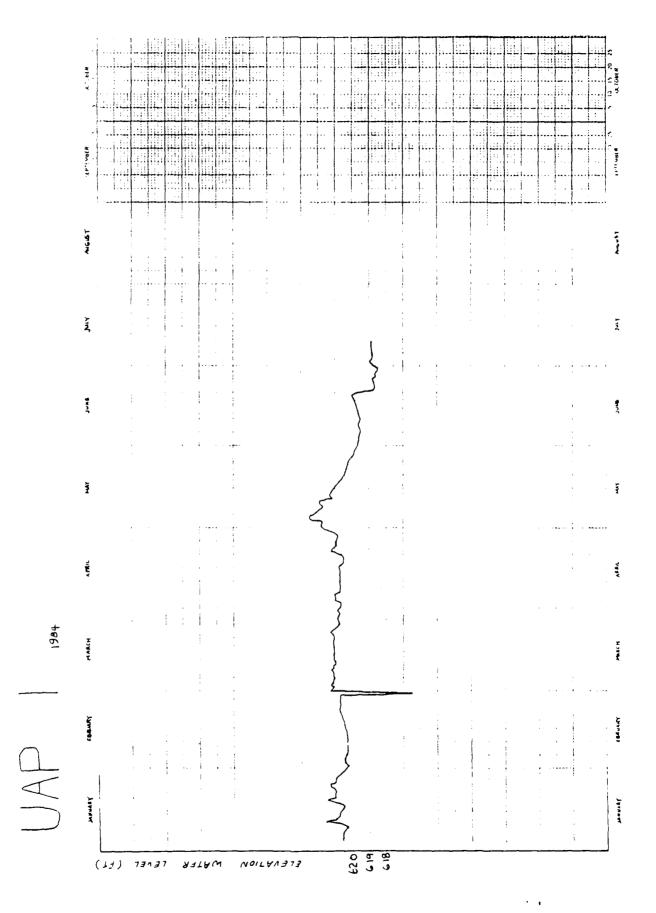
RILLING	LOG	Cont S	heet) ELEVATION TOP OF HOLE 675.7			Hole No. 60
MOJECT		_	Diversion Dam	on Hartwell	l Lake	SHEET D OF 6 SHEETS
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIAL (Description)	S RECO	RE BOX OR	REMARKS (Drilling time, water loss, depto of weathering, etc., if significant)
607.7	6 8	c	ď	ERY	'	g
607.6			Concrete (Continued)		Pull 15
					Вох	From 68.1 to 73.1 Run 5.0 Rec 5.0
	70			10	0 7	C.L. 0.0 Time 8:40-8:57
		ļ				
	72					
602.6						
	74_				74.1	Pull 16 From 73.1 to 73.1 PRun 5.0
				10		Rec 5.0 C.L. 0.0 Time 9:05-3:22
	76				Box 8	
	-					
597.6	78					Pull 17 From 73.1 to 33.1
	-			10	0	Run 5.0 Rec 5.0 C.L. 0.0
	80					Time 9:30-3:49
			1			
	82	† †				
592.6						Pull 18 From 33.1 to 85.1
	84			C - 167		Run 5.0 Rec 5.0 C.L. 0.0
					85. Box 9	Orime 10:02-10:20
589.7	86		Continued Sheet #6		_	

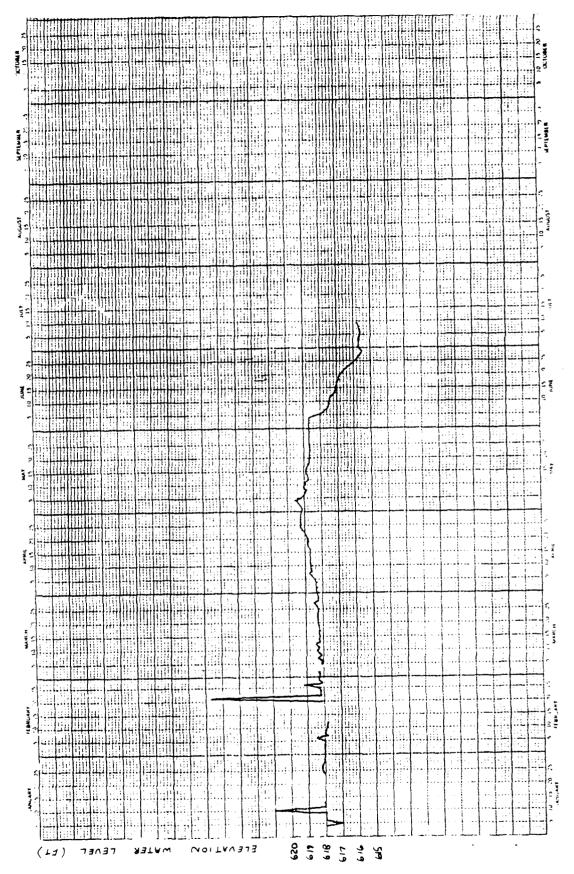
	LOG	(Cont S	heet) ELEVATION TOP OF HOL				Hole No. 60
PROJECT C 1 on		II = = = =	Divorcies De-	INSTALLATION Hartwe	 و ۲ 1 1	ke	SHEET 6 OF 6 SHEETS
		1	Diversion Dam Classification of		% CORE	BOX OR	REMARKS
ELEVATION	DEPTH	LEGEND	(Description		RECOV- ERY	SAMPLE NO.	(Drilling time, water loss, depth of weathering, etc., if significant)
<u> 589.7</u>	86	c	d		e	f	8
	=		Concrete (Cont	inued)			Pull 18 (Continued)
ĺ	=	'		2			, , , , , , , , , , , , , , , , , , , ,
]							
	_					[
587.6	88					Box	
	_	1				9	Pull 19
ł	_				100		From 88.1 to 91.5
					1.00		Run 3.4 Rec 3.4
	-						C.L. 0.0
}	90	į				ļ į	Time 10:32-10:46
	_						
	_					}	Note: Tool dropped
			_			}	0.1' at 91.5'
584.2	_	-	Bottom of co	ncrete			Pull 20
	92	}	91.5'				From 91.5 to 93.1 Run 1.6
	<i>-</i>]			0		Rec 0
	=	1		!			C.L. 1.6
582.6		1] !	Time 11:00-11:05
	_	1					,
	94	ţ		1	0	}	Note: Drill water-
}	74 — <u> </u>			į	V		100% return, brown
Ì	_					! !	color, fine sand in water
						1	C
1	_					[Pull 21
	o/ =						From 93.1 to 98.1
	96						Run 5.0
	_					}	Rec 0 C.L. 5.0
		{		'			Time 11:10-11:25
				1			
	00 =						Note: Drill water-
577.6	98					98.1'	Lious iceain, brown
	_	}				[color, fine sand in
	_		Bottom of Hole	2: 98.1'			water
	_	}					Note: 4-18-84 water
	=	}					level after drilling
	_	}		!			80.4'
	_]		•			
1	_	1				1 1	4-19-84 water level
	-	1] .	at 24 hours 34.5'
	-	1					
		‡				}	
	-	1					
				. 		(i	
				C - 168			
	_	ł]	
	-						
	_	i				}	
	_	1				,	

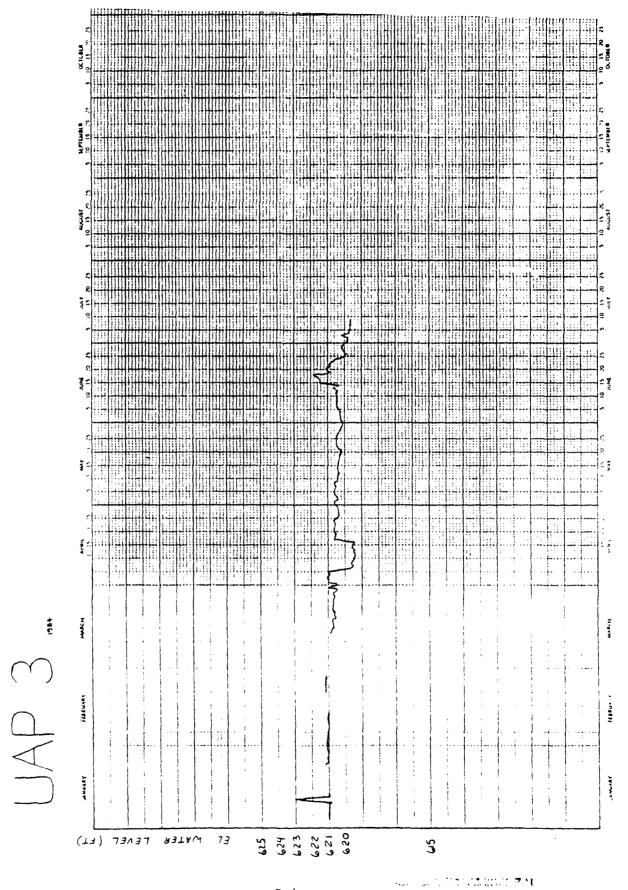
REHABILITATION OF CLEMSON UPPER DIVERSION DAM CONSTRUCTION FOUNDATION REPORT

APPENDIX D

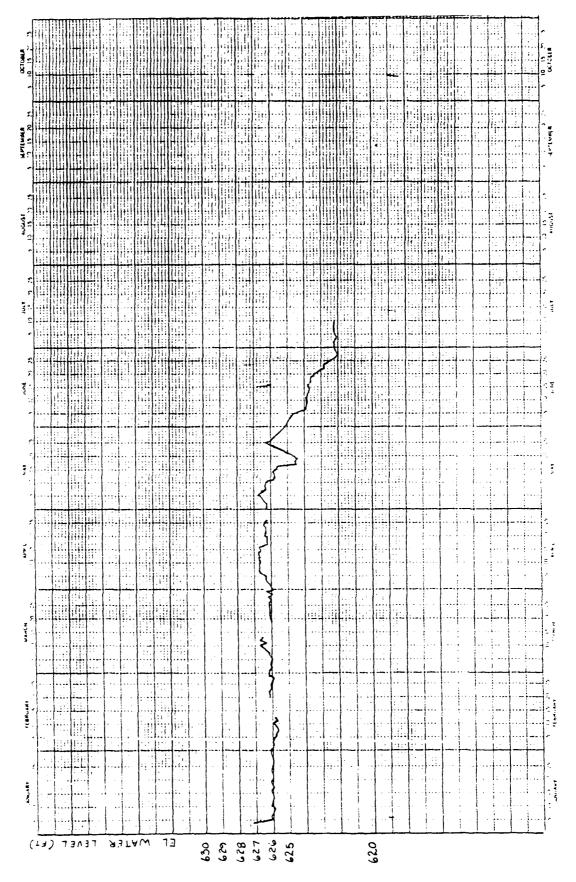
Piezometer Plots





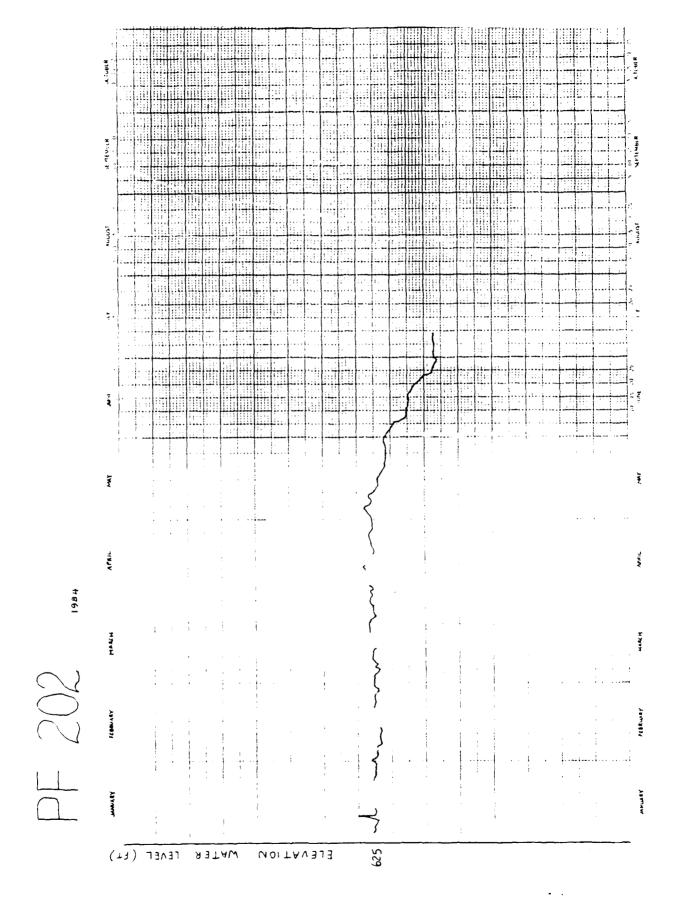


PC 202 mat

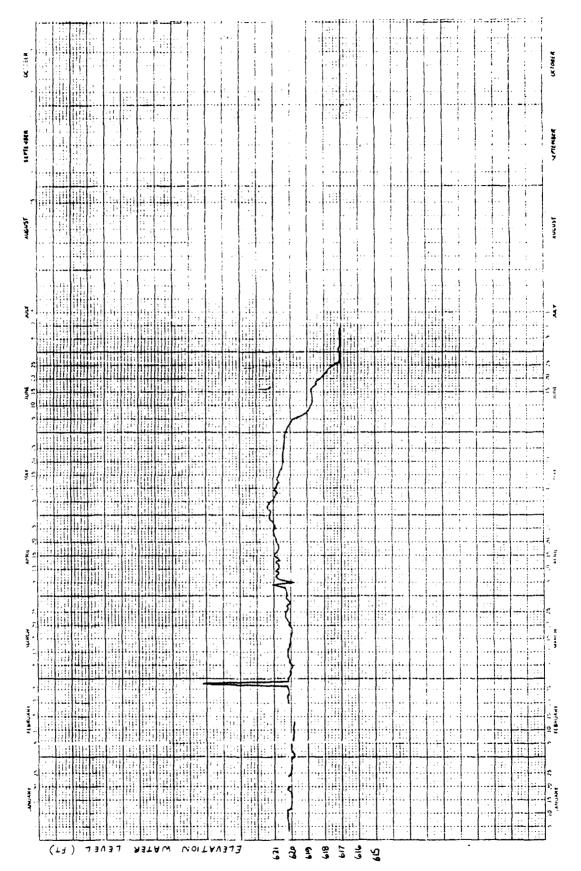


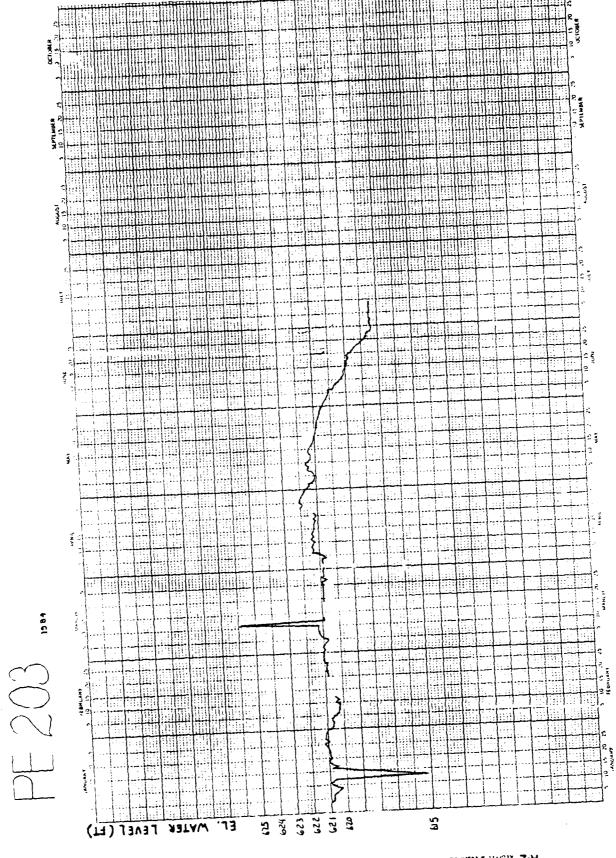
C TO BAR					
T-FAMILY STATES					: : : :
Aucust					
Amt					
gard			}		
H44					
AFBIL		\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\			
7- 8- 17 17- 17- 17- 17- 17- 17- 17- 17- 17- 17-		}		:	
) }	; ;			; ; ;	:
Agameter		}			

7. 3. M

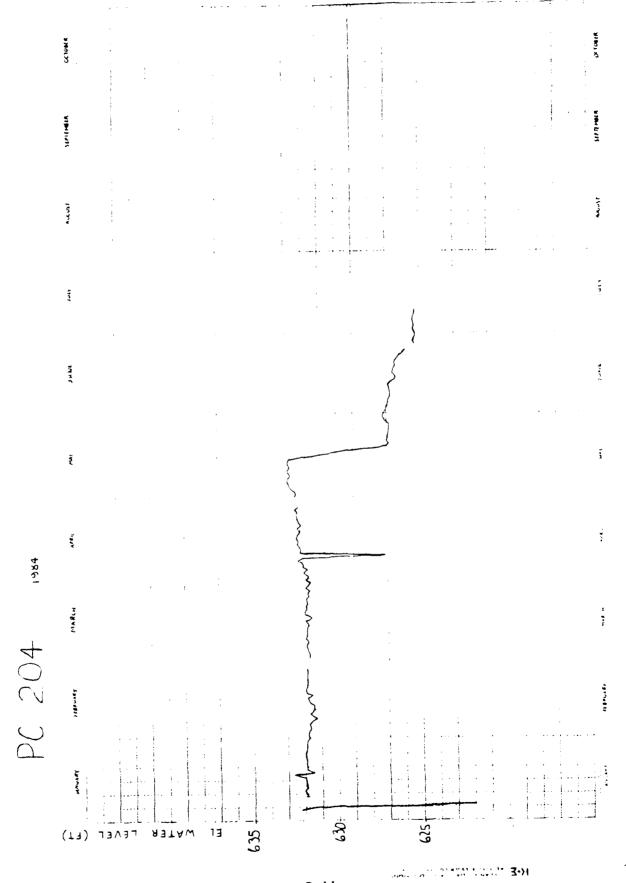


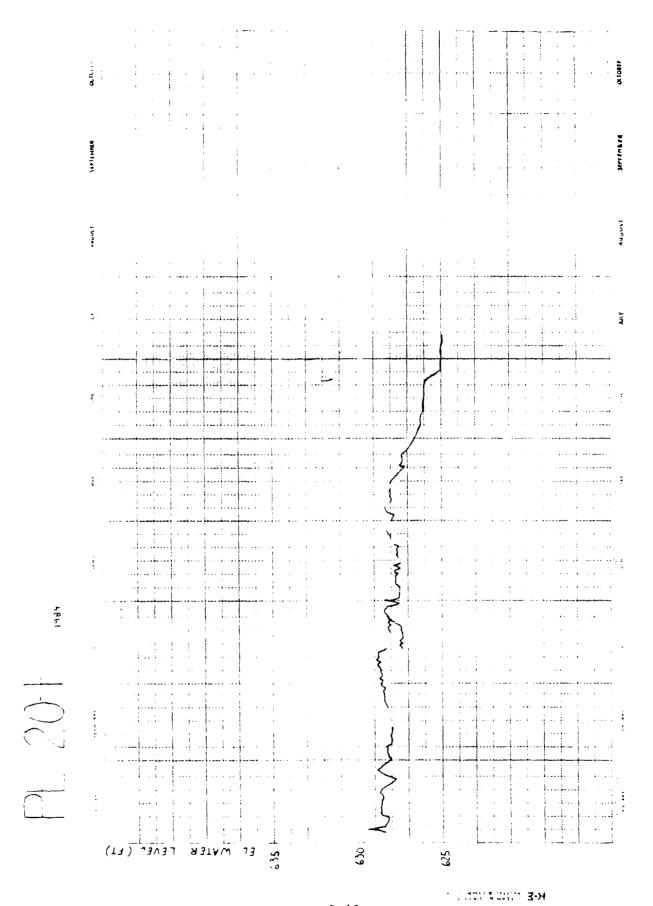
PC 203

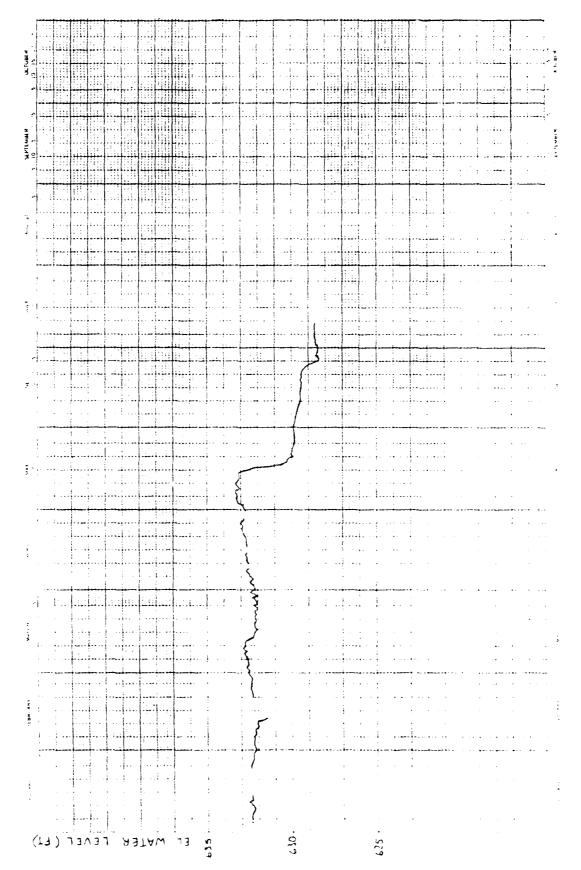




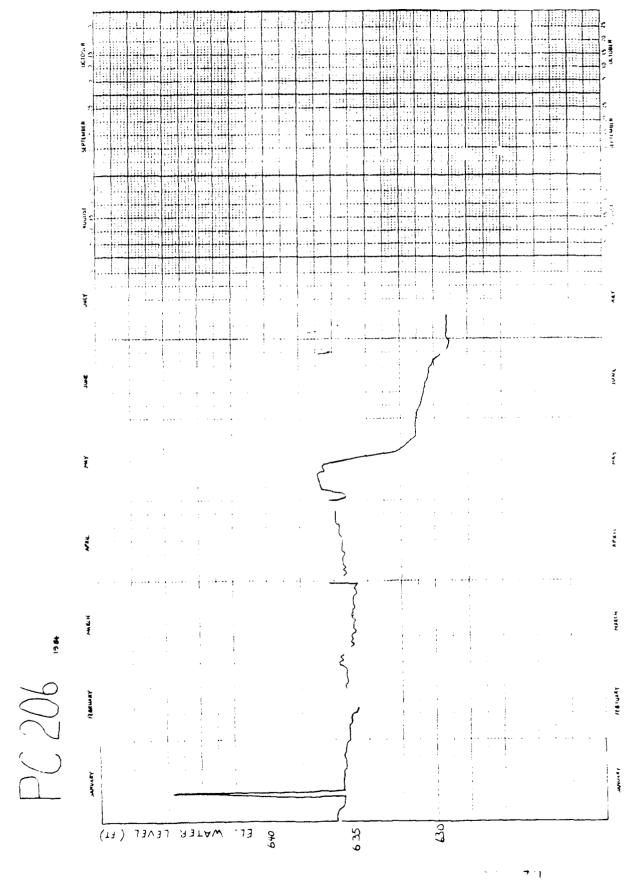
EL WATER LEVEL (FT) 623 623 623 623 623 623

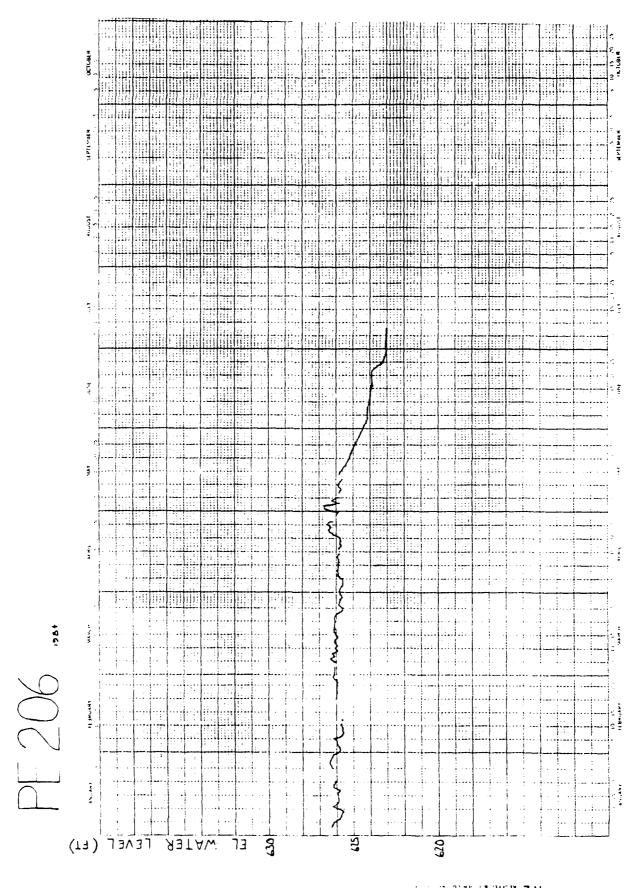


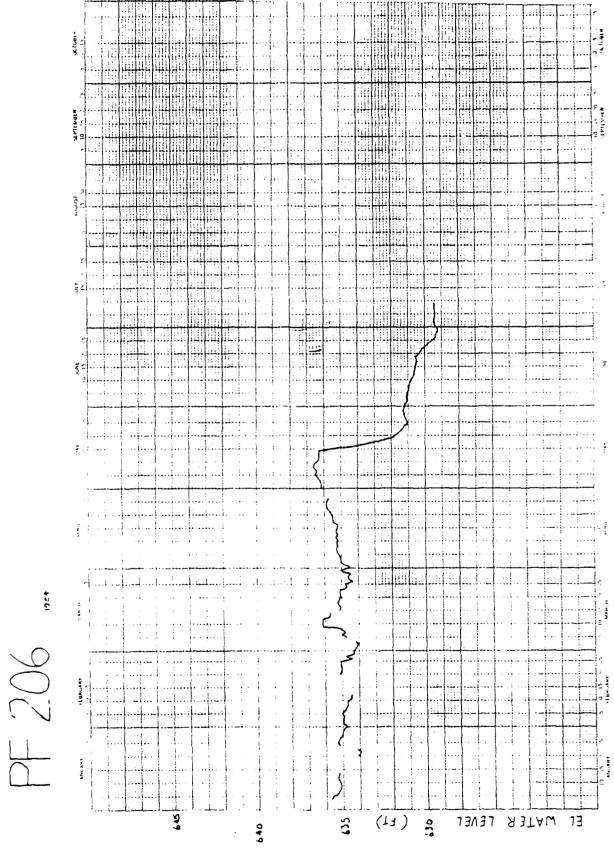




D - 13

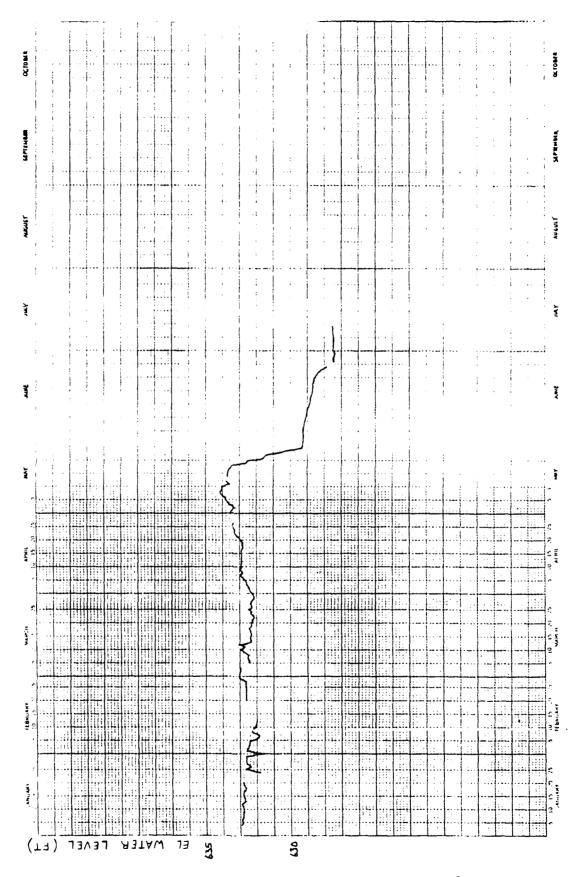


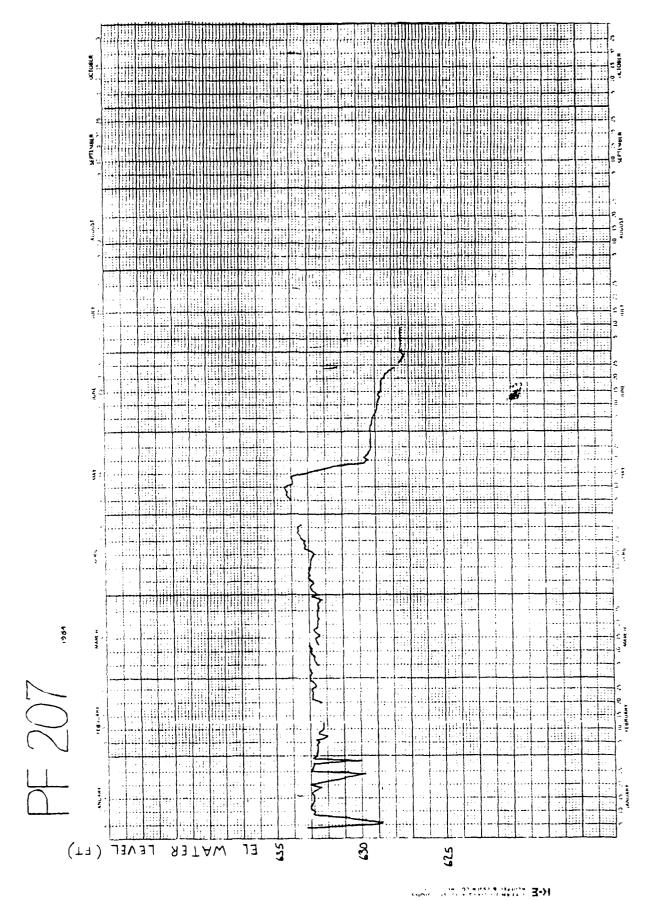


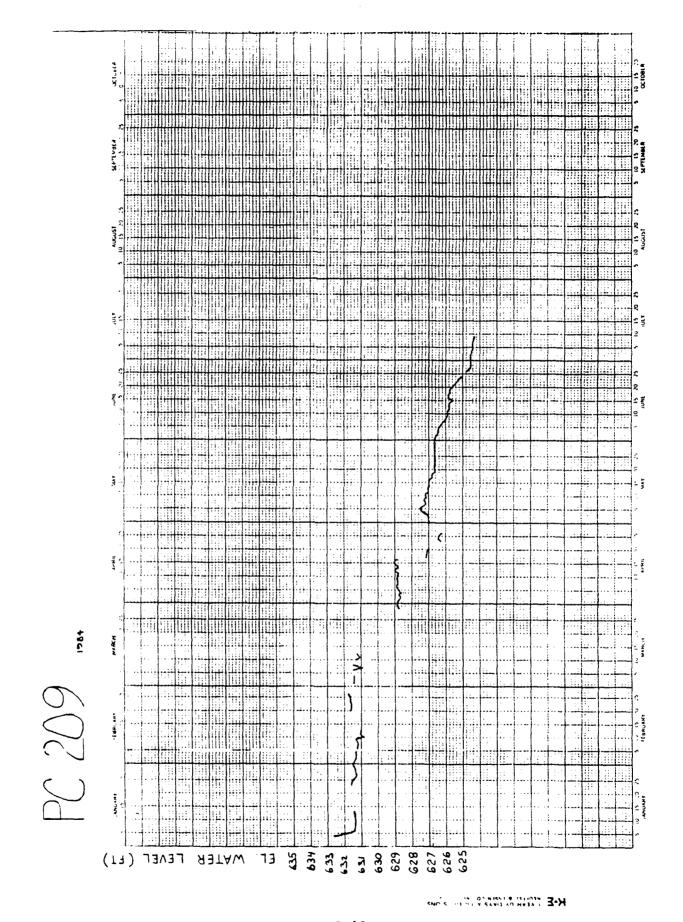


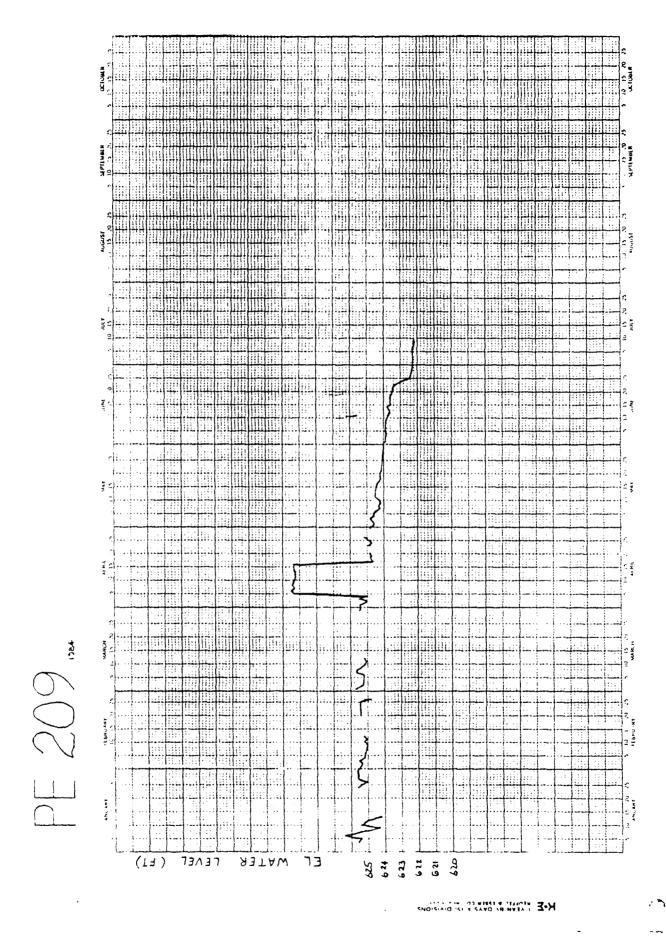
K-E LATER CHANGE TO COMP

PC 207

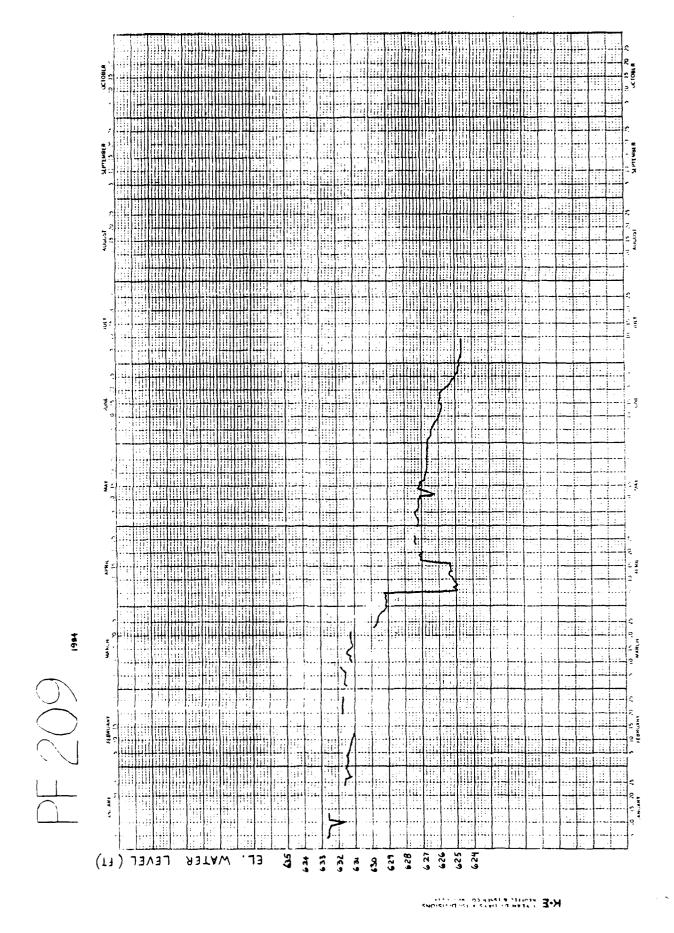


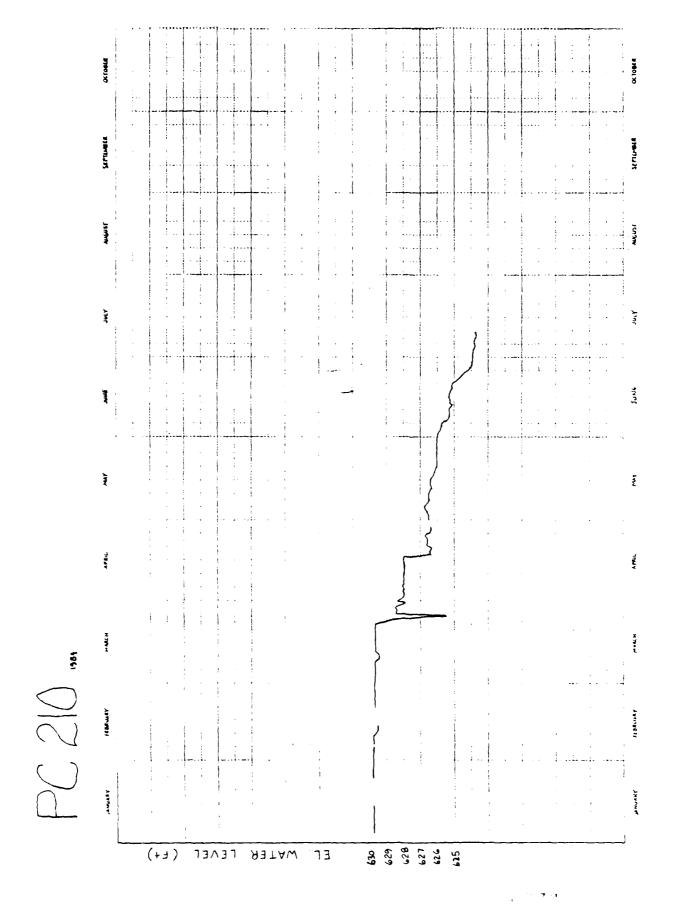


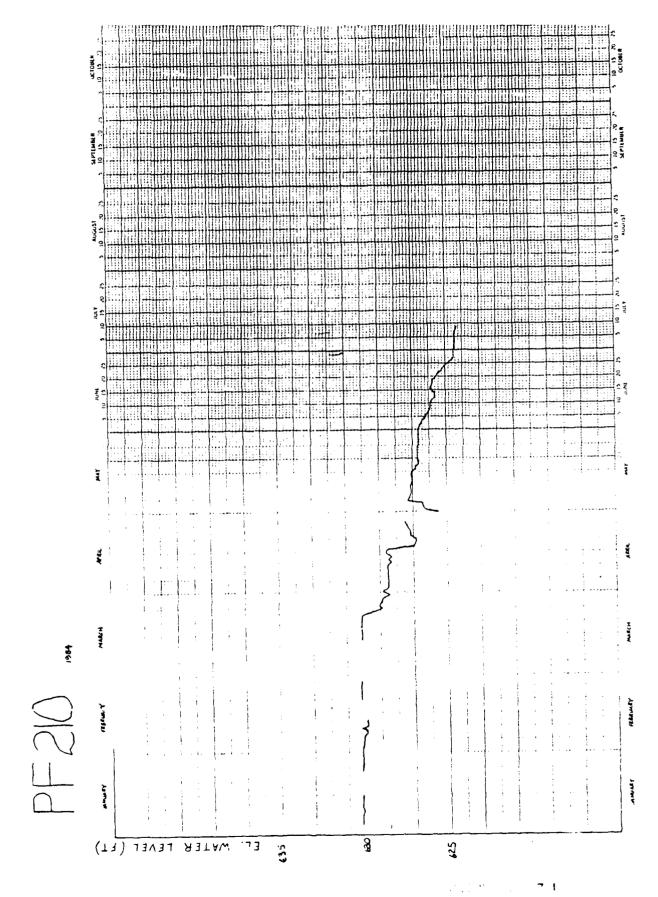


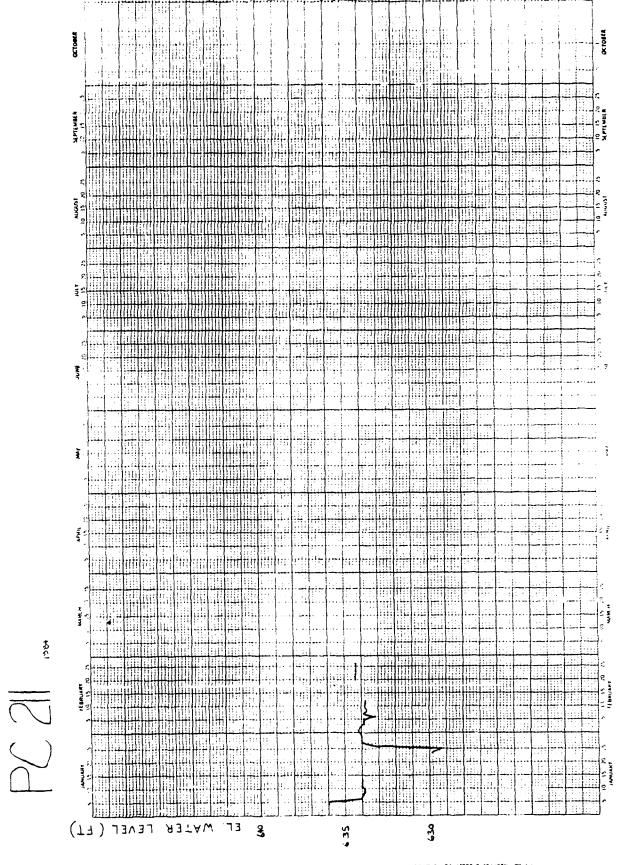


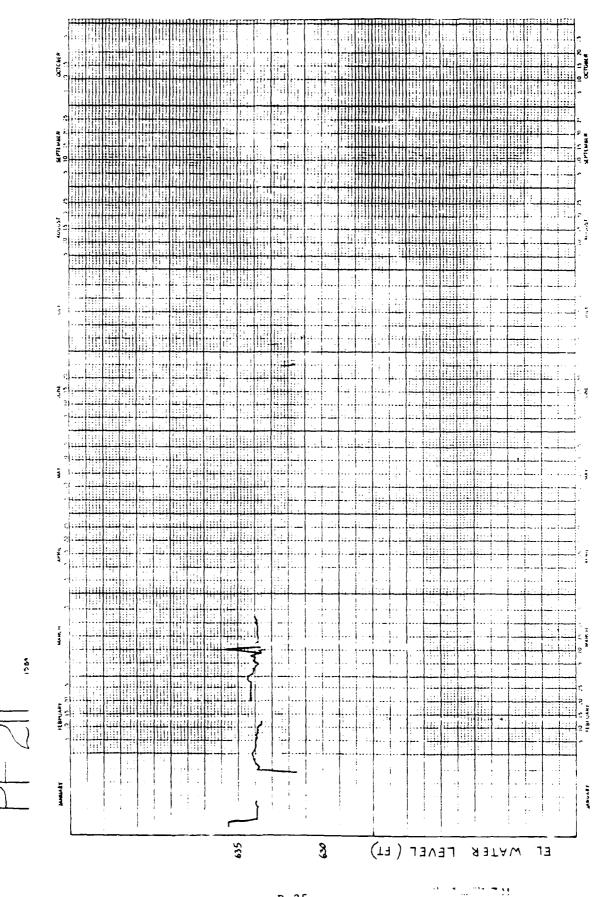
D-20



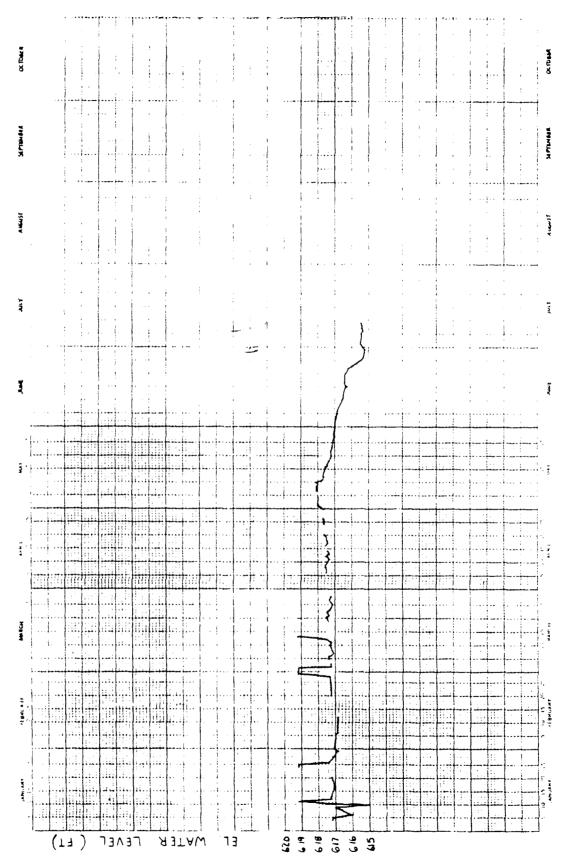








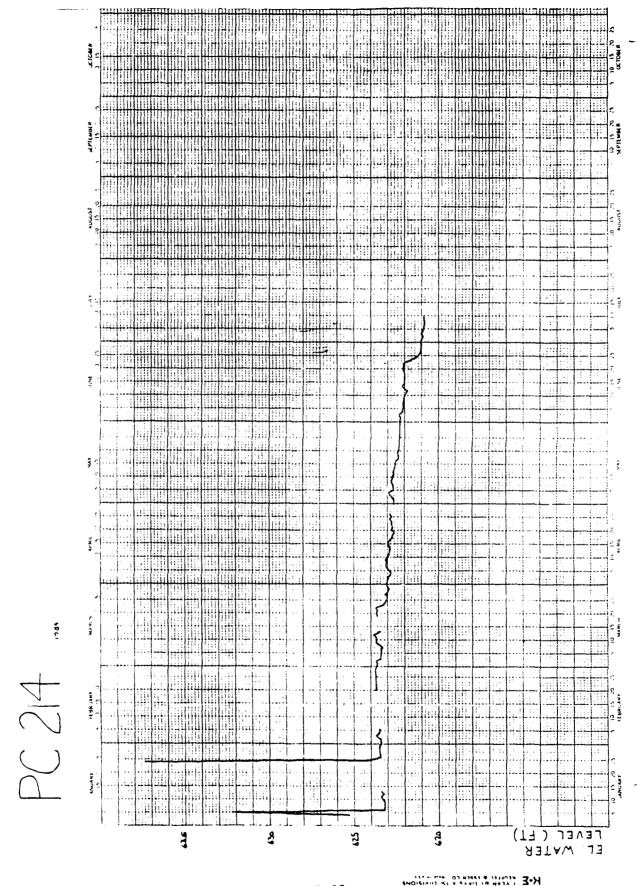
PC 212 ...



K-E STREET PERFECT OF WELLOWS

D - 27

SHOW OF STATE AND BY



REHABILITATION OF CLEMSON UPPER DIVERSION DAM CONSTRUCTION FOUNDATION REPORT

APPENDIX E

Inclinameter Plots

